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THE

OPHTHALMOSCOPE

A MONTHLY REVIEW OF CURRENT OPHTHALMOLOGY.

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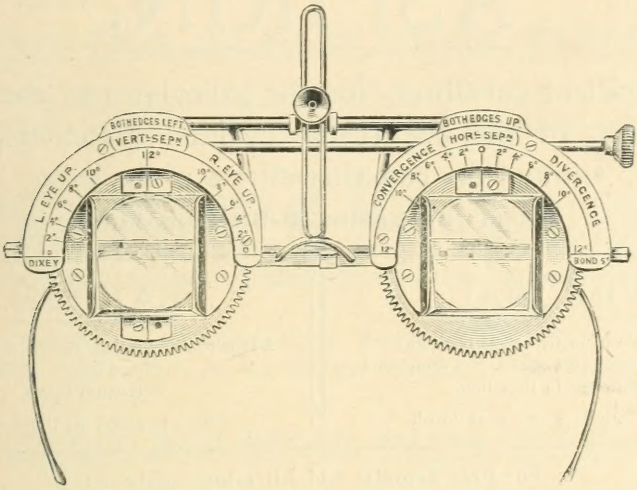

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THE

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A MONTHLY REVIEW OF CURRENT OPHTHALMOLOGY.

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ORIGINAL COMMUNICATIONS.

MAJOR SMITH'S OPERATION FOR EXTRACTION OF CATARACT IN THE CAPSULE.*

BY

J. RUTTER WILLIAMSON, M.D.,

ROBERT BARBOUR MEMORIAL HOSPITAL, BHANDARA, C.P. INDIA.

The discussion concerning extraction of cataract in the capsule, which, for six years, has gone on more or less vigorously in a

*This article was primarily written at the request of the Editor of a small medical handbook circulating among surgeons of the M.M. Association of India. The Editors of THE OPHTHALMOSCOPE feel that it deserves a wider publicity.

prominent Indian medical journal, has revealed the deep interest which surgeons take in the subject.

It would seem that sufficient time has now elapsed for a fairly unprejudiced consideration of the subject to be made, and of the advantages claimed for the newer operation. In accepting the invitation of the Editor to undertake this task, I did so because, having seen Major Smith perform his operation at Jullundur nearly 200 times, I became convinced that, in several important particulars, it materially differed from that I had seen done by various surgeons and had performed myself, under the impression that Smith's teaching was being followed.

It is certainly a wonderful sight to go on a pilgrimage to Jullundur, and see the Civil Hospital, with 400 cataract patients, during those six weeks of autumn or spring when Smith has what he calls his "throng-season."

A well-known ophthalmic surgeon, whose experience is all *against* this operation, suggested some time ago that in the Punjab the patients must differ in cleanliness from those in other parts of India, and that the climate was better for such eye operations, and that these things might constitute part of the reason for success at Jullundur. The patients certainly are different, though not in the sense he meant; they are much dirtier and the air being laden with dust during nearly eleven months of the year constitutes the ideally *bad* climate for such operations and as Major Smith operates with windows wide open, looking upon the dirty Bazaar, and with 40 to 50 patients huddled on the floor close around the operating table, his success must be due to causes other than climate or exceptionally clean patients.

I need hardly say that it is not for choice that he carries on his work in these conditions, but of necessity until a new and larger hospital is finished.

That clinique at first sight gives one's antiseptic principles a violent shock; but looking a little more closely, one sees that all *essential* requirements for surgical cleanliness are there, and the simplicity of the means used teaches one a lesson in hospital economy.

Nor must it be supposed that the class of patient is such that any sort of visual result would be accepted without criticism.

To hold in one's hand some of the gold filigree ornaments worn by the women, which their fathers or brothers manufactured after having cataracts extracted in the capsule, proves very clearly how excellent must be the result for a workman to be able to turn out handiwork of such charm and delicacy.

It has also been alleged that the larger wound must inevitably result in serious astigmatism. Yet both Smith and Oxley (*Ind.*

Med. Gazette, December, 1906, p. 482) find that their patients, many of whom are clerks and writers, will rarely accept even a *plus* 1 D. cylinder.

But, someone has urged, may it not be that the Panjábi is a more self-controlled patient than most in India, and that would count for much in so delicate an operation.

I doubt whether he is any more self-controlled, except in as far as the way he is treated during the operation tends to conserve any degree of self-control he may possess, and not to dissipate it as I am sure we often unwittingly do when we carry a man off to a room furnished with strange and fearsome appliances, and shut him in with ourselves (foreigners) and away from all his friends, to carry out manipulations of which he is conscious all the time. And, secondly, as will be seen later, there is nothing asked of the patient in which self-control and obedience are specially required, and, therefore, even if he possessed it in a prê-eminent degree, it would not help much in the surgical result of the operation as performed by Smith, though, of course, his quietness and calm are re-assuring to the surgeon's equanimity.

In a word, therefore, we must look for the cause of success beyond the surroundings or character of the patient.

The patients are all seen and selected by Major Smith himself, and are usually operated upon within an hour or so of their arrival; frequently after having walked a considerable distance from their village to the Hospital. Their clothes are not changed, their faces are not washed, nor is atropine instilled. In fact, the axiom followed throughout is to ask as little as possible from the patient, and deal with him as he is; relatives and friends remaining within sight and sound of him the whole time.

Two tables stand near each other, and while one patient is being operated upon, an assistant is preparing another by somewhat vigorously scrubbing his face and closed eyelids with a swab of 1 : 20 carbolic lotion. Instruments which cannot be boiled are previously soaked for an hour in similar lotion. They are then put, for convenience, into a mug containing 1 : 40 carbolic. The knives, however, are always taken direct from, and returned to, a tray of 1 : 20 carbolic lotion. Six or eight feet above the tables is suspended a large irrigator holding some gallons of 1 : 2,000 corrosive sublimate lotion with a wide ($\frac{1}{2}$ or $\frac{3}{4}$ inch) rubber tube reaching to the table and controlled by a clip.

The eyelashes are not cut. Several drops of a 4 per cent. solution of cocaine are instilled and the speculum is inserted. Major Smith has had a speculum made by a native workman with a moderate spring and no cross-bar, as the latter often gets in the way when the handle of the knife needs to be lowered. The speculum is raised so as to hold up the two lids well while the fornices are douched out with the mercury lotion for a few

seconds, which from such a "head" comes with very considerable force.

He then takes hold of the conjunctiva close to the lowest part of the cornea, and gives the fixation forceps a half-twist round to secure a good grip, and makes it less likely for the conjunctiva to tear.

The point of the knife is then entered about 1mm. above the horizontal meridian, and carried swiftly, but without undue haste, to the opposite side, where, to quote Smith, it emerges "at the sclero-corneal junction, just as deep as anatomy and experience teach us will avoid wounding the vessels of the dangerous area." It is to be brought out "half way between a normal pupil and the sclero-corneal junction." Smith describes a normal pupil as one neither contracted nor dilated. In practice this seems to work out at about 2mm. or $2\frac{1}{2}$ mm. from the sclero-corneal junction.

If done with a good sharp knife (Weiss' knives will with care do 50 to 80 incisions without needing to be sent to England for setting) passed right up to the heel, the incision will be completed with the one sweep of drawing back the knife, and cutting out at the same time. A sawing movement is almost sure to catch and to wound or to bruise the iris, and cause the patient to wince. Smith invariably uses his right hand to make the incision.

The speculum is now removed, and not again used.

Now comes the assistant's part, and so important is it that it should be correctly done that the operation is almost impossible without an intelligent assistant, who will hold the lids as directed, and not let them go until told to do so. The upper lid is lifted up by a large blunt hook held by the assistant's left hand, while the thumb of his other hand draws the lower lid well down and away from the eye. It is essential that his hold be not relaxed, as otherwise the patient may screw up his eye, and then vitreous will almost certainly be lost, which is the chief risk attaching to the operation. The little finger of the hand holding the upper lid also pushes up, or unrolls as it were, the orbicularis muscle, so that a clear field right up to the superior fornix is obtained. The two hands accomplish this task in such fashion as to at the same time hold the head firmly within their grasp, to prevent any accidental movement by the patient during the process of extraction. The strabismus hook is better for this purpose than a Desmarres' retractor, as it is smaller, and obscures less of the field.

The surgeon, with a flat spoon or vectis in left hand, inserts it under the upper lid, to raise that half of it which is not so fully raised by the assistant's blunt hook. This may be placed at nasal or temporal side, according to the operator's predilection.

Smith does not now employ it for exerting counter-pressure, as he finds there is less risk of vitreous escaping if no counter-pressure be used, and the expression of the lens is almost as easy, although a trifle slower.

With his right hand he places the convexity of a strabismus hook upon the cornea, over the junction of the lower with the middle third of the lens. This is not altered in position till the lens is half way out. The pressure is directed to the back of the eye, and at first is neither towards the wound nor from it, though when the lens has started on its way there is an almost unconscious slight adaptation of pressure toward the free edges of the wound. When the lens is half way out the hook is shifted, so as to tilt to some extent the edge of the lens into the concavity of the hook. If the lens sticks, the hook is moved to one or other side without lifting it from cornea or relaxing its pressure, so as to try and disengage the peripheral portions.

The pressure exerted is moderate, *slow and continuous*, gradually relaxing in amount as the lens is seen to be well on its outward way. The process must be done slower, and with much more deliberation than in the capsule-laceration operation. The continued pressure quickly tires out the iris, which dilates and allows the lens to emerge very like the process of parturition. If the expression be attempted rapidly, the capsule will probably burst, just as it is coming out. If this accident does happen, it is best to keep up the pressure with the hook, so that the capsule does not retract, and try and gently drag it out with a pair of ordinary dissecting forceps applied to the part outside the wound. The broad hold so secured will often succeed in drawing out the whole of it with its contained lens matter.

During all this manipulation the patient is not spoken to, nor asked to aid in any way either by looking up or down. To do so, most of us have probably found, more often flusters the already nervous patient, than succeeds in getting him to do promptly what is requested of him. As a consequence the generality of patients will be found to turn the eye so that it looks high up into the superior fornix, *i.e.*, it assumes the position of sleep, which is believed to be also the position of lowest intra-ocular tension.

This is an awkward position for the surgeon, though the extraction can quite well be performed with the eye in this position, provided the assistant holds the lids as described; *and it is the position of greatest safety for the patient, as far as the risk of vitreous escape is concerned.*

Directly I saw Major Smith expressing the cataract high up in this manner, I realized how great a security it was against loss of vitreous, especially when I also noted that in the few cases where vitreous escaped, it occurred when the patient had

persistently looked downwards during the manipulations. It is curious that Smith himself, has, as far as I am aware, never laid stress upon this procedure in his articles, a procedure, which, to the writer, seems such a very important element in success. The majority of his cataracts emerge high up under the upper lid.

The expression being safely concluded, the iris, if outside the wound, is replaced, and the upper lid is allowed to descend slowly over the eye ; the lower lid is relaxed in similar manner, and the finger is then gently swept over the closed lids from nasal to temporal side to expel any aqueous or blood. No atropine is instilled except for some very special reason. Sterile iodoform and boracic powder is sprinkled over the closed lids ; a double fold of gauze wet with 1 : 2,000 mercury lotion or 1 : 40 carbolic is laid over both eyes ; alembroth wool is packed carefully into the hollows, and both eyes are covered up with two turns of a gauze bandage. The patient is always carried to bed. The bandage is not undone till the fourth day unless there be pain. The number waiting for operation is such that in the busiest season most patients leave hospital on the sixth or seventh day.

Smith now usually does an iridectomy mainly because with 400 eye patients in Hospital and a small staff of assistants, he cannot afford to run chances of prolapse which occurs more often when no iridectomy is done, and takes up time in its treatment. His method of performing the iridectomy is ingenious. After the incision is made as described he dimples in the cornea close to its free edge with one limb of the iris forceps, thus causing the edge of the iris to appear outside the wound ; at the same time the other limb, which is resting on the sclerotic above, is slid along so that the iris is lightly caught in its grasp, pulled outside and cut off in the usual manner ; the whole procedure being effected without the entry of an instrument to the interior of the eye. Probably one cause of Smith's cases doing so well is the fact that from first to last only one instrument enters the eye, and that, the one which is most easily made surgically clean—a knife. And it only enters once. (When I was there I remember the records showed that there had only been one case which suppurated in the last five hundred extractions.)

If difficulty be encountered, and vitreous escapes, the flat spoon which is in readiness under the upper lid, is at once slipped in beneath the lens to remove all pressure from the vitreous, while it is being expressed as previously described, the spoon being withdrawn *pari passu* with the escaping lens, and *not* being used, as in Pagenstecher's operation, for the purpose of extracting it, but only to hold it against the cornea while it is being expressed by the slight pressure applied to the cornea by the strabismus hook.

The readiness to hand of this instrument is appreciated at such a moment when to turn aside to lift an instrument from the tray would probably result in still more vitreous being lost.

In every case where such an accident occurs the vitreous should be cut off level with the corneal surface before the eye is finally tied up.

If the lens is large with pearly well-marked sectors, and the wound seems relatively small for its delivery, it can sometimes be successfully expressed by tipping its superior edge forward, which is accomplished by making slight pressure over the cornea in the direction *toward the lower lid* instead of directly to the back of the eye. Then as it tilts forward it is followed up by the convexity of the hook, or, without lifting the hook from the cornea, the blunt point can sometimes be advantageously substituted to dislocate the peripheral portion. The lens thus makes a turn over the anterior edge of the wound and falls on to the cornea.

If the cataract is of that bluish skim-milk hue which so often has a very thin capsule and bursts, it would be better, until conversant with this operation, to scratch the capsule and to extract in the old way.

The loss of a small bead or two of vitreous does not seem to impair the results materially.* Whether the remote effects are as serious as many surgeons believe them to be, is difficult to estimate until a considerable number of cases where such an accident has happened, have been kept under observation for several years. As far as I know this has not yet been done by anyone in India on a scale sufficient to enable one to draw correct deductions.

Certainly, if after-results were *frequently* impaired, it is at least probable that Major Smith would by now have had a fair number returning to *him* with complaints, even though the majority might rather go to surgeons other than the one by whom the primary operation was performed. Apparently, after nearly 14,000 extractions in the capsule, his experience seems to

*NOTE.—As an instance of a case which did well after considerable loss of vitreous, I give the following, which occurred when out touring. I did the operation in the jungle under a tree with few appliances beyond my case of instruments. An old woman, with double cataract and slight glaucomatous tension in both eyes, begged to be operated upon, on the chance of getting enough sight to get about. With diffidence I consented, meaning to scratch the capsule. As soon as the incision was completed, however, and before I could get the speculum removed from the eye, she squeezed it up vigorously, and shot the lens in its capsule out of the wound, followed by a third or more of the vitreous. The vitreous was snipped through close to the cornea; the eye was hastily closed and she was carried home. Several months afterwards when in the district I had her brought to see me. The tension was normal, and her sight excellent. Of course it is quite possible that a year or two hence conditions may be different and late detachment of the retina occur. But so far her sight is good enough for all her requirements.

be that unless vitreous loss be very considerable, it is an accident which makes little, if any, difference to the quality or permanence of the after-results, presuming that no infection has been introduced into the eye by much instrumentation.

The risk can be reduced through the operator's careful choice of cases, until his *tactus eruditus* for this special operation has been acquired. Smith says that with selection he could easily keep it down to 2 per cent. As, however, he thinks the risk of small escapes a trivial one compared to iritis and after-cataract, he employs the operation in the vast majority of cases (*i.e.*, 94·6 per cent., vide *Indian Medical Gazette*, Sept., 1905, page 328), and in consequence has a larger percentage (6 per cent.) in which loss, usually very trivial, occurs. In a recent paper (*Indian Medical Gazette*, Feb., 1907, page 53) he relates that, without any special selection, he did 97 consecutive cases before there was one in which this accident occurred.

The advantages of the operation might be summarised as follows :—

1. No after-cataract to be dealt with, causing the patient disappointment that the one operation was not enough, and necessitating further absence from home and work, as well as the risks attendant upon the treatment of such after-cataract. We must all know how often a patient refuses to have anything further done, and then his poor visual acuity discredits the surgeon and hospital where he was first treated.

2. Lessened risk of iritis from there being no lens-matter left behind.

3. No need of introducing instruments, such as iris forceps or irrigator. This minimum of instrumentation must also mean a minimum of risk of inflammatory and infective processes.

4. The ease with which immature cataracts can be removed at one sitting.

5. The shortened period of stay in hospital, due to the absence of complications. The rareness with which atropine is used is striking, and is in a large hospital an appreciable saving of the assistants' time.

6. One might also add that the avoidance of a conjunctival flap in Smith's operation is certainly convenient in keeping the field clear from blood, and it does not seem to make healing the least bit slower. I rather doubted this at first, but after further experience I think that, as far as one can judge, the healing with the corneal flap seems to be every whit as rapid and as sound.

Against the operation, however, must be put :—

1. Greater skill necessary for its performance.

2. An intelligent assistant requisite.

3. A real, though not a vastly greater risk of vitreous escaping than in the usual capsule-laceration operation. This risk, like

many others in surgery, becomes less as the operator becomes more expert. But, when every allowance is made, it does constitute one of the real dangers of the operation. As a rule, if Smith's directions are followed, the amount escaping is small.

4. Possibly consecutive upon 3. is also a greater risk of remote retinal detachment.

5. Another possible, though as far as I can find out, and at present unproved risk is, that of great astigmatism from the larger flap requisite.

6. The larger wound certainly makes iris prolapse more likely, if there is not an iridectomy performed as part of the operation.

In closing, it would seem to be good practice, *at first*, to avoid extraction in the capsule of those bluish skim-milk colored lenses, which are known by experience to have very thin capsules; always to perform an iridectomy except in immature cataracts: to take plenty of time in the expression of the cataractous lens; and in every case where after fair trial the capsule seems certain to burst, to scratch it and to extract in the way most familiar to you.

PROLAPSE OF IRIS IN SIMPLE CATARACT EXTRACTION.*

BY

A. C. ROPER, F.R.C.S.E.,

SURGEON TO THE WEST OF ENGLAND EYE INFIRMARY, EXETER.

It has been the traditional practice in the West of England Eye Infirmary for the past thirty years at least to perform the "simple operation" for cataract extraction, and to do an iridectomy only when some abnormality in the eye, some difficulty in the operation, or some peculiarity in the patient, rendered the mutilation necessary or prudent.

The late Mr. Bankart, whom I succeeded, was the unswerving champion of the operation, and I think that the result of his operations, which I have the honour of presenting to-day to this distinguished audience, justifies his faith. At a time when most English ophthalmic surgeons were unanimous in preferring the combined operation, chiefly on account of the dreaded prolapse of iris, he used to say, "The fashion will change again, and they will return to the old operation."

The appended tables contain an analysis of 150 cases done in this Infirmary by Mr. Bankart and of a similar number

*Read August 2nd, 1907, in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Exeter.

done by myself—practically all that I have done. Mr. Bankart's cases have not been as minutely analysed as my own, because he seldom, if ever, corrected astigmatism in the class of patient whom we have to treat. Nothing was further from his mind than statistics; and knowing that the spectacles he ordered would probably be used with frames distorted and lenses scratched to the wearer's dying day, he was probably not far wrong in correcting spherical errors only.

Of Mr. Bankart's 150 cases there is no record of the resulting vision in 25, and in my 152 cases there are 22 similarly unrecorded. This gives a total of 47 unrecorded cases, or 12.311 per cent., and they are nearly all cases which were made out-patients three or four weeks after their operations and told to come up later for glasses, but who failed to do so. The notes in all cases are carried down to the time of their discharge, so that it is pretty certain that no surgical failures are included among them.

Of Mr. Bankart's 150 cases, 133 were simple extractions—88.66 per cent., and 17 were done with iridectomy—11.33 per cent. Of the 133 cases of simple extraction he had six cases of prolapsed iris—4.51 per cent., and 127 cases which did not prolapse—95.49 per cent. Of the 125 cases in which the vision is recorded, 5 cases (or 4 per cent.), resulted in V=O and 2 of these were cases of suppuration (1.6 per cent.)

Two cases had V under 6/60 (1.6 per cent.)

The remaining 94.4 per cent. had V from 6/60 to 6/5.

Analysing these six cases of prolapse—

No. 1. Operated on in 1880, prolapsed on the 7th day; the prolapse was excised on the 13th day. The pupil being drawn up, iridodesis was done. There is no record of vision, but he had glaucoma eight months later.

No. 2. The prolapse was excised. V=6/24.

No. 3. The prolapse was excised. No record of V.

No. 4. No note of excising prolapse. V=6/36.

No. 5. Prolapse not excised. V=6/12.

No. 6. Prolapsed on 9th day—not excised only record V.

My own tables show a very inferior result to those of my late colleague in that I have 11 per cent. of prolapses, but there are two things which may moderate criticism upon them. First, Mr. Bankart was an experienced and skilful operator at the time when the series of his cases commences, whereas I was young and inexperienced and my first case begins my series. Secondly, Mr. Bankart thought not at all seriously of prolapse, and I know from close observation of his wonderfully good work for over twenty years that he would not class as a prolapse a case in which a small tag of iris was caught in the wound or where the

periphery of the iris was by pressure from within the eye forced against the wound and gummed there. I have classed all such cases as prolapses, no matter how small the prolapse might be.

Of my ten cases, in which no vision resulted, four suppurated, two immediately after the operation, attributed to fœtid breath, one on the 10th day and one on the 12th day; both the latter had chronic lid trouble. I had one case of hæmorrhage from the retina at the time of operation, and one of hæmorrhage into vitreous due to an attack of bronchitis after the operation. I lost one eye when excising a prolapsed iris last year. The vitreous was fluid and straw coloured, and so much escaped that the eye shrank by 1/3. The other cases were done as "forlorn hopes" which were not realised. In my early days I often operated on "forlorn hopes," largely, I am afraid, for the sake of my own experience, and I always found my senior colleagues most generous in granting me facilities for operating on these cases.

In explanation of the printed table of cases I should explain that the first column contains the results of all my cases of which I have records. In the second series of columns I have omitted 24 cases, in which pre-existing abnormalities interfered with the results, but had no bearing upon the merits of the method of operating. By comparing columns 2 and 3, *i.e.*, the 85 cases including 14 prolapses, and 71 cases where no prolapse occurred, it is possible to see that the main result of prolapse is to slightly lessen the percentages of V 6/6, 6/9, 6/12, and possibly to cause the loss of one eye.

As mentioned in a previous paragraph, the one case which I lost from prolapse was due to shrinking of the eye from a large escape of fluid vitreous when I excised the prolapse. From the colour and fluidity of the vitreous which escaped, I think the eye would have been useless in any case.

Operation. Incision.—In my incision I make the puncture and counter-puncture at the extreme edge of the cornea, and I cut thence so as to leave a margin of rather less than one mm. of clear cornea at the upper margin. I feel sure that the little ledge of cornea which is thus left supports the iris and renders it less liable to prolapse. On a few occasions, when I have designedly or accidentally failed to make this ledge, the iris has prolapsed at once or subsequently, so that I now excise a piece of iris unless the incision is to my liking. I need scarcely say that the most fertile cause of a badly-made incision is a too thin and "whippy" knife—*i.e.*, a knife that has worn thin in the centre of the blade.

After-Treatment.—The patients are kept in bed and carefully nursed and fed until the 8th day, when they are allowed to get up. The dressings are left unchanged for 48 hours, unless pain

or some untoward indication renders it desirable to examine the eye. The dressings are then changed and the lids bathed without opening the eye. I usually look at the eye—just a glance at the pupil—on the third day or frequently the fourth.

Treatment of Prolapse.—If prolapse occurs within 24 hours of operation I excise the iris at once and the case proceeds like one in which iridectomy was done at the time of extraction. One of my cases of prolapse recovered with V. 6/5 and it was one of these early prolapses. These are, however, the exception, and I think it is because the patients are very careful to obey instructions for the first day or two. It is when they have wearied of the monotony of a vegetable existence and are feeling quite well, with nothing the matter except a bandage on their eyes, that the dangerous period occurs.

I consider it neither wise nor necessary always to excise or to attempt to excise a prolapse, and my inclination is to do it less and less. If the accident occurs on the 3rd or 4th day and the prolapse is severe, I should remove it, but if it were only slight I should leave the cure to nature and possibly excise the cystoid scar later, if it were causing irritation. If you attempt to excise a small prolapse there is great difficulty in seizing the iris except with a hook, and in doing so you probably get escape of vitreous. If, on the other hand, there is a large wave of the iris sprouting through the wound, forceps will seize it through the soft plastic lymph with which it is covered, and you will very likely have no escape of vitreous. After the 5th day a sudden large prolapse is rare. What happens is typified by the following case which occurred in my practice this year.—I operated for an immature cataract on a coachman and had a little difficulty in getting his large sticky lens to present. As it was delivered with a considerable amount of soft matter I saw a small bead of vitreous under the iris. I was able, however, to replace the iris without any escape and he was put to bed with a good central pupil. He did well until the morning of the 8th day, on which he would have been allowed to dress. It was then seen that there was a very slight prolapse, the wound just opening all through its length. Atropine was used thrice daily to keep the lower margin of the pupil in its place, but for three or four days the amount of iris in the wound slowly increased as it stretched the plastic lymph which had nearly secured the wound. It would have been most difficult at any period, large as it eventually became, to excise this prolapse, and, with the knowledge that I had ruptured the posterior capsule at the operation, I did not attempt it. About a fortnight after I dissected the cystoid cicatrix off with scissors and forceps, and the eye speedily recovered with V. $\frac{6}{6}$.*

*This case is not included in the tables.

My general idea, then, of treating prolapses is to excise the quite early ones. To be guided by the amount of irritation caused and the lower margin of the pupil, as to whether I excise those of the third, fourth, or fifth day, or wait to deal later with the cicatrix; and, because it is so difficult to seize the iris, not to attempt it with very late ones, but to deal with the scar when it has become sufficiently organised.

I have seen no case of irido-cyclitis or suppurative infection following prolapse.

Mr. Bankart's 150 Consecutive Cases of Cataract Extraction.

Of these he did 133 Simple Extractions ... 88·66 %.
,, ,, 17 Extractions with Iridectomy 11·33 %.
In his 133 Cases of Simple Extraction he had 6 Prolapses 4·51 %.
RESULTS:—
Of the 150 cases there is no V. recorded in 25 Cases.
Of the remaining 125 Cases; 5 resulted in V. = 0 = 4 %.
(2 of these were Cases of Suppuration 1·33 % (of 150 Cases.)
2 Cases had V. = $\frac{6}{9}$ ... 1·6 % (of 125 Cases.)
The remaining 118 Cases or 94·4 % had V. from $\frac{6}{60}$ to $\frac{6}{5}$.

Mr. Roper's 152 Consecutive Cases; of 22 of which there is no record of the resulting V.

107 Cases selected from the total of 130 recorded.
The Cases omitted are 4 Cases of Suppuration and 19 which exhibited abnormalities unconnected with the operation, such as corneal opacity or fundus Diseases. All Cases of Prolapse are included in the tables, 2 of them having no record of V.

Resulting V.	1 All recorded Cases 130.	2 85 Simple Operations including Prolapse.	3 71 Simple Operations excluding Prolapse.	4 22 with Iridectomy.	5 14 Cases of Prolapse only.
$\frac{6}{5}$	3·84 %	5·88 %	5·92 %	0 %	7·14 %
$\frac{6}{6}$	15·81 ,,	18·82 ,,	22·64 ,,	0 ,,	7·14 ,,
$\frac{6}{9}$	25·58 ,,	30·58 ,,	30·52 ,,	40·5 ,,	21·42 ,,
$\frac{6}{12}$	14·07 ,,	16·47 ,,	19·72 ,,	18·5 ,,	0 ,,
$\frac{6}{18}$	12·30 ,,	9·41 ,,	7·88 ,,	18·5 ,,	14·28 ,,
$\frac{6}{24}$	6·92 ,,	5·88 ,,	5·92 ,,	4·5 ,,	7·14 ,,
$\frac{6}{36}$	3·84 ,,	3·52 ,,	2·96 ,,	4·5 ,,	7·14 ,,
$\frac{6}{60}$	4·61 ,,	2·35 ,,	2·96 ,,	0 ,,	0 ,,
$\frac{6}{0}$	6·15 ,,	3·52 ,,	1·48 ,,	4·5 ,,	14·28 ,,
0	7·69 ,,	1·17 ,,	0 ,,	0 ,,	7·14 ,,
no record	0 ,,	2·35 ,,	0 ,,	0 ,,	14·28 ,,

SERUMS AND METALLIC FERMENTS IN OCULAR THERAPEUTICS.

BY

DR. A. DARIER,

OF PARIS, FRANCE.

Although antiseptics have, thanks to Lord Lister, played a most important part in surgery, yet we now know that asepsis is even still more valuable. Prophylaxis—vaccination, as it were—is the ideal in dealing with the various infections that we have to dread. Jenner, Pasteur, Behring, and Roux have been the pioneers in this direction; while in eye work Römer has taught us the great share that may be played by serotherapy in the treatment of infective ulcerations of the cornea, much as Hippel and others have proved that Koch's tuberculin, so much decried at first, is capable of bringing about a permanent cure in certain forms of ocular tuberculosis. Lastly, Credé, Netter, and especially the veterinary surgeons, have succeeded in putting an end to the gravest infective processes by the intra-venous injection of colloidal silver. Identical results have been attained in ophthalmology by Trousseau, Leloutre, Baudoin, and myself.

A novel treatment of infection, therefore, is now offered to us in place of the so-called "antiseptics" hitherto employed. I am in the position to add my modest experience as a pioneer in this new field of therapeutics. This I purpose to do in the following brief communication.

It was by pure chance that I first saw the part that the Roux serum might play in treatment of diseases of the eye. In the year 1899 I published details of an interesting case in which a corneal infiltration, which, rightly or wrongly, I considered to be diphtheritic in character, melted away under the remarkable action of the Roux serum. Since that early experience whenever I have had to deal with a conjunctivitis presenting even a suspicion of a pseudo-membranous nature, I have never hesitated to practise two or three injections of the serum, in addition to appropriate local treatment. In 1903 one of my *confrères* brought his baby to me affected with purulent streptococcal ophthalmia, with both corneæ involved. In the course of three days I made three injections of the Roux serum, and in that case I had the satisfaction of witnessing the corneal ulcerations recede, and finally disappear almost without trace of their former existence. Since then, on every occasion when I have seen ulceration of the cornea, even when due to the gonococcus, I have always derived benefit from the injection of serum.

It was about that time that Römer published his interesting works upon the treatment of infective ulcerations of the cornea

by means of antipneumococcic serum. At that moment I had under care three cases of hypopyon-keratitis. I was unable to procure Römer's serum. Accordingly, I tried the effect of antidiphtheritic serum, and was surprised to obtain a favourable result, the use of serum being combined, of course, with the ordinary local treatment.

When I procured a supply of Römer's serum, I tried its effect upon three other cases of infective keratitis (*Leçons de Thérapeutique Oculaire*, 1907), and I satisfied myself that the therapeutic result of the two serums—antipneumococcic and antidiphtheritic—was identical.

A *confrère* at the Pasteur Institute, to whom I communicated these facts, did not appear to be surprised. Indeed, he advised me to make similar trials of antitetanic serum. This I did altogether unwittingly, for the same day having prescribed antidiphtheritic serum, I was astonished, when the injection had been made, to find that the flask bore the label: "*Antitetanic Serum.*" The result, as regards cure of the disease, was identical with that of the Roux serum.

This fact may be explained in the following way: when an animal has been immunised actively against a toxin as potent as diphtheriatoxin or tetanotoxin, all the elements of the organism are placed in a state of defence, diffused abundantly in the blood, the anti-bodies, or the antitoxins, immunisines, which are peculiar to them. The glandular elements, as the thyroid, suprarenal glands, the spleen, the liver, the testicles, the lymphatic nodes, etc., as well as the nervous, muscular, and osseous tissues, etc., are all in a state of organic hyperactivity. It is easy to conceive that the serum of such an animal will be rich in all the elements of defence, and that the latter injected into the body of a patient affected with any infective malady will aid the organism to rid itself of its particular infection.

Reasoning in this manner, it occurred to me to apply serotherapy in a case of endogenous infection, observed in a cachectic woman, aged 72 years, following an operation for cataract, executed correctly, and not associated with any ulterior infection of the wound. After three injections, each of 10 cc. of Roux serum, the hypopyon disappeared, the orbital pains disappeared, and the patient's general condition showed a considerable improvement. In a case of iridochoroiditis, following a penetrating wound of the ciliary region, I was equally able to observe a most favourable influence on the evolution of the infective process, an amelioration of the general condition, a more or less complete cessation of pain, and an improvement in the local state (the pupil responding better to atropine, and so forth).

Further experience has convinced me of the efficacious action of serotherapy. To-day I never hesitate, when faced with hypopyon-keratitis, or traumatic or operative intra-ocular infection, to practise three or four hypodermic injections of the Roux serum, although I do not on that account neglect local treatment, trying to alternate the different therapeutic interventions and to graduate them according to the intensity of the infective process

Rogmann has proposed the injection of antipneumococcic and of antistreptococcic serum with a view to prevent post-operative complications in cases where such were to be apprehended.

Without claiming that the injection of antidiphtheritic serum would exert a prophylactic action against post-operative infections, I cannot recommend too highly this absolutely harmless means in all cases where one has reason to fear surgical complications of an infective order, as in the following case quite recently under my care.—A penetrating wound of the cornea by a piece of iron involving the iris and the crystalline lens. I extracted the foreign body, after excising the prolapsed iris. Vitreous presented in the wound, so I covered the latter by means of a conjunctival flap. On three consecutive days I injected 10 cc. of the Roux serum, and then practised intravenous injections of collargol. The patient, who had experienced much pain, suffered no further discomfort after the first injection. Cicatrisation was rapid and complete. The iris is adherent to the cataractous lens, which I hope to extract before long.

I recognise fully that the multiplicity of measures adopted in the foregoing case may by some be held to cast doubt upon the effect produced respectively by the serum and the collargol.

To my mind, in clinical work one should mistrust too precise scientific experimentation. At all events, personally I have never leant towards submitting the patient who is suffering from an infective ulceration of the cornea, except when quite at the commencement of the morbid process, to serotherapy pure and simple Under those circumstances, I have remarked that serum alone may lead to cure. In more advanced cases, treatment by serum does not yield absolutely certain results. The way in which I have seen Römer himself treat these ulcers at Würzburg does not prove that the action of the serum is the sole agent at work in the excellent cures that he effects, since I am persuaded that if he did not treat his cases as in-patients, and if he failed to keep the eyes and the lacrymal passages in a state of great cleanliness—in short, if he was compelled to treat the cases as out-patients—that his statistics would be less brilliant, and that he would be obliged, as I am, to resort more frequently

to the galvano-cautery and to other measures of local treatment, in order to fortify the general action of his serum.

Several years ago my colleague Boucheron proposed injections of antistreptococcic serum in the treatment of rheumatic iritis. That serum, as we know, has not met with striking success, because of the difficulty of procuring a product always adequate to the case under treatment. Now that polyvalent serums are available, however, it would be interesting to repeat Boucheron's experiences.

In the meantime I have myself tried the Roux serum in a case of violent iritis occurring in a rheumatic subject; but I found that syphilis was, after all, the cause of the inflammation, despite the denials of the patient. I shall not abide by this negative trial of an agent, which may become, moreover, a valuable element in differential diagnosis, and in the future I propose to submit to serotherapy all cases of iritis that I meet with, and if marked improvement does not occur after two or three injections to employ the means in current use.

In recent numbers of *La Clinique Ophtalmologique* I have described two interesting cases of gonorrhœal iridocyclitis rapidly cured by the intravenous injection of collargol. I now regret that I did not try serum in these cases. I might perhaps have obtained quite as brilliant a result.

Readers of THE OPHTHALMOSCOPE know, in fact, the interesting results that have been obtained from collargol in the treatment of infective ulcers of the cornea, panophthalmitis, and in septic post-operative complications. In my opinion, in all such cases it is advisable to commence the treatment by serum, and then to follow that up with a series of intravenous injections of collargol.

Postscript.—While the present communication was passing through the press, I received a reprint from the *Münchener medicinische Wochenschrift* (No. 19, 1907) of an article by Professor Deutschmann, of Hamburg. That well-known writer announced that, thanks to a serum obtained by the immunisation of animals by means of yeast, he had rapidly cured infective ulcers of the cornea, post-operative or traumatic irido-cyclitis, and certain cases of iritis occurring in rheumatic subjects. These facts agree absolutely with those observed by myself and outlined above, and go to prove that microbic specificity is not essential to the action of serum. Moreover, the results observed by Deutschmann with his serum in pneumonia and in certain paratuberculous fevers are identical with those noted in 1901 by Talamon in the treatment of pneumonia by means of antidiphtheritic serum. Facts of a similar kind have been reported by other observers. Lately, Robin and Bardet's

communications on colloidal silver and metallic ferments have shown us that cures identical with those obtained with serum may be got with the other agent. It seems likely that the phenomena of oxidation lie at the bottom of the processes which go on in the tissues during the fight of the organism against the infective elements and their toxins. It is recognized that the action of serum is due to the presence of oxydases, capable of destroying toxins. A specific serum, such as that of diphtheria, has more chances of success in a diphtheritic infection, although it may show itself equally active in septic infections, endometritis, salpingitis, gonococcal vulvitis, streptococcal stomatitis, pneumonia, broncho-pneumonia erysipelas, cerebro-spinal meningitis, and even in appendicitis.

The conclusion of the whole matter is that simple, non-specific, antitoxic serotherapy should in the future be employed as an important agent in general therapeutics and in the prophylaxis in all infections, general or local, without prejudice to the usual local treatment. The Roux-Behring serum is at this moment the product which is easiest to procure and the one most worthy of confidence. It should be employed until such time as more extended researches have yielded precise indications with regard to the respective merits of the different serums and metallic ferments.

CLINICAL, PATHOLOGICAL, AND THERAPEUTICAL MEMORANDA.

A CONGENITAL ABNORMALITY OF THE CORNEA.

BY

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Phyllis C., a healthy child of 10 weeks, with no developmental abnormality beyond two slight notches on the upper lip, was brought to me on September 19th, 1906, with the following history.—She is her parents' first child; the delivery was instrumental. Nothing was remarked at birth, but three days afterwards it was noted that the outer half of the left cornea was covered by a white patch. There was never any redness of the eye or swelling of the eyelids. The outer and lower quadrant of the left cornea is occupied by a dense white patch of porcelainous appearance, superficial and roughly triangular in shape. Its apex

extends over the pupillary area and it is sharply defined. The neighbouring cornea is nebulous, and the sclera adjacent to the base of the leucoma is bluish, suggesting some local thinning. The whole looks like a piece of thin egg-shell laid

Fig. 1.

upon the cornea, from which it projects some 0·3 mm. (Fig. 1). Fourteen days later the opaque mass is decidedly smaller. The pupil appears to be drawn towards it. Upon dilatation, the anterior chamber is deeper below than above where the iris comes forward—the lower and outer margin of the pupil is entirely hidden by the leucoma ; there is nothing abnormal in the fundus. The dense central portion of the leucoma retains its sharply-cut edges, but is somewhat rugose It appears to be breaking away. No staining with fluorescein (Fig. 2).

Fig. 2.

November 17th.—The iris can now be plainly seen to be drawn forward to the nebula. The porcelainous opacity is smaller, but as dense as previously.

December 21st.—The opacity has now divided into two smaller portions, both with broken edges, and much resembling morsels of egg-shell.

February 2nd.—There is now but a small fragment remaining of the opaque "scale," which appears to have slipped downwards. The iris is seen to be adherent to the nebula, which is now sufficiently transparent to allow the colour of the iris to show through it.

Present condition (June, 1907).—The densely opaque scale has now entirely disappeared, and the iris is obviously adherent to the cornea behind a faint nebula which has assumed a somewhat crescentic shape (Fig. 3).

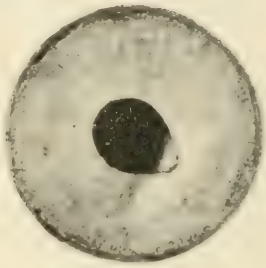

FIG. 3.

Comments.—The early occurrence of the dense leucoma and the absence of injury at birth point to an ante-natal perforation of the cornea, probably from ulceration. The condition, in short, is almost certainly one of so-called congenital leucoma adherens. Its causation is probably quite analagous to that now generally believed to account for congenital staphyloma.

THE PATHOGENESIS OF IRIDO-CYCLITIS.

BY

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In our present state of knowledge it appears to me justifiable to claim that every case of irido-cyclitis is of septic or of toxic origin. The septic infection may be conveniently spoken of as exogenous and endogenous, and of these the latter is much the more frequent. A good example of exogenous toxis is seen in the irido-cyclitis that so generally accompanies pneumococcal ulceration of the cornea, and of exogenous sepsis in the same disorder as it follows a penetrating wound of the eye inflicted by a surgically unclean weapon. On the other hand, syphilis,

gonorrhœa, rheumatism, tubercle, leprosy, pneumonia, pyorrhœa alveolaris, and so forth, all represent endogenous infections or intoxications of the eye.

It is unnecessary nowadays to argue that probably the whole of the nutrient lymph of the eye is elaborated and secreted by the ciliary processes, which represent a simple form of filtration apparatus, being provided, as they are, with numerous blood capillaries separated from a lymph space—*i.e.*, the posterior chamber—by the delicate epithelium of the pars ciliaris retinæ. The arrangement, indeed, as pointed out by Mr. J. H. Parsons (*Diseases of the Eye*, 1907, p. 7), recalls that of the glomeruli of the kidney. It further subserves a similar function in the shape of filtration of fluid—lymph in the one case and the urinary liquids in the other. It matters little from the present point of view whether the process is carried out by the tiny tubular glands described by Mr. E. Treacher Collins (*Researches into the Anatomy and Pathology of the Eye*, 1896, p. 56), as existing in the ora serrata or at the junction of the plicated and non-plicated portions of the ciliary body. An assumption that these glands are the source of the nutrient fluids of the eyeballs is unnecessary for my present argument, which merely accepts a proposition admitted by everybody—namely, that the chief, and perhaps the only, source of the aqueous humour is intimately concerned with the ciliary processes.

This arrangement, as I pointed out some years ago (*Lancet*, February 29th, 1896), gives us, I believe, a clue to the explanation of how the several septic and toxic agencies set up inflammation of the iris and ciliary body. The ciliary processes, whose vital cells are possibly modified molecularly by a virus, say, that of syphilis, circulating in the blood stream, makes an attempt to excrete the extraneous substance. The virus, be it micro-organism or bacterial or cellular toxin, thereby gains access to the posterior and anterior chamber of the eye, and in doing so excites inflammatory reaction in the tissues, such as the iris, that it comes into contact with. The reaction visible clinically is on this hypothesis to be regarded as nature's attempt to excrete the poison, whatever its exact nature.

In this connection I would remind readers that the treponema pallidum has twice been found in aqueous humour taken from an eye affected with acute syphilitic iritis—once by zur Nedden (*Bericht der Ophth. Gesellschaft*, Heidelberg, 1906, p. 215) and once by myself (THE OPHTHALMOSCOPE, June 1, 1907). It is difficult to believe that this organism, which is almost certainly the cause of syphilis, could have reached the anterior chamber of the eye otherwise than by the ciliary processes. To take another example in the shape of tubercle bacilli, which have been found

twice by Gourfein (*Rev. Méd. de la Suisse Romande*, April 20, 1903) in aqueous humour from patients suffering from tuberculous iritis. Some two years ago I succeeded in growing the tubercle bacillus on glycerine-agar inoculated with aqueous humour from a similar case; and, doubtless, others have made the same experiment. For one of the most conclusive pieces of experimental evidence, however, we have to thank our own countryman, Dr. J. F. Poynton. That observer, as we all know, claims that in the micrococcus rheumaticus, discovered by himself and Dr. Paine, the cause of rheumatic fever has been found (*Lancet*, September 22 and 29, 1900). The diplococcus in question was isolated after death from the cardiac valves, pericardial exudation, and rheumatic nodules, and during life from the blood, tonsils, synovial fluid, and urine. Identical lesions were produced in rabbits by cultures of the micro-organism. Now Poynton twice succeeded in setting up experimental irido-cyclitis by injecting the micrococcus rheumaticus into the auricular vein of rabbits (THE OPHTHALMOSCOPE, October 1903), and the anterior chamber was found in these cases to include leucocytes loaded with the micrococcus, a culture of which produced a chronic arthritis when injected into another rabbit. Finally, Gillet de Grandmont (*Archives d'ophtalmologie*, 1892, p. 623) found typhoid bacilli in irido-cyclitis associated with typhoid fever, and streptococci in a case of cyclitis resulting from erysipelas.

Instances might be multiplied, but enough has been said to show that specific micro-organisms have been found in the aqueous humour in cases of irido-cyclitis due to certain well-defined bacterial causes.

It is possible that relapsing irido-cyclitis, such as that often associated with rheumatoid arthritis and much less frequently with antecedent gonorrhœa or influenza, is due to germs which have lain latent, until excited to renewed action by altered conditions of environment in the tissues of the iris or ciliary body.

With regard to toxins the difficulties are greater, inasmuch as our chemical tests are as yet inadequate to recognise the existence of a single one of these hypothetical substances. On the bacterial analogy it seems likely, however, that these bodies may be the cause of some forms of irido-cyclitis, especially perhaps that associated with gonorrhœa. If we admit this for the bacterial toxins, we cannot logically deny that the same line of argument may apply to the so-called cellular toxins, such as are nowadays believed to be the outcome of an enterogenous auto-intoxication.

The theory I have advanced is capable of explaining many points in the pathogenesis of irido-cyclitis that even to-day are

not so clear as we might wish, although I do not venture to claim that so simple a view represents the truth of the entire matter. At the same time I have found it a good working hypothesis to guide one in the management of the various inflammations of the iris and ciliary body. As such I commend it to the notice and criticism of my readers.

TRANSLATIONS.

THE NEW PROCEDURES FOR THE DIAGNOSIS OF SYPHILIS.

(Technique of examination for spirochætes in smears and sections — Technique of experimental inoculations — Technique of examinations for syphilitic antigènes and antibodies.)

BY

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[*Translation by R. J. Coulter, M.B., F.R.C.S.I.*]

Syphilitic infection plays so important a *rôle* in ocular pathology that it appears to us of the highest importance to put our readers in touch with the discoveries as to the etiology of syphilis which have been made by experimental researches and by microscopic study during recent years. Consequences of the greatest importance for diagnosis have already resulted from them, and there is no doubt that the study of the localisation of the spirochæta pallida in the tissues will lead us to a complete revision of our pathogenic conceptions with regard to a certain number of ocular affections. The methods of examination for the spirochæta will, without doubt, be improved, but such as they are to-day they are capable of giving precise results, and we believe that we ought to reproduce them here to allow those whom clinical chance puts in possession of specimens or eyeballs affected with syphilitic lesions to study in them the presence and the mode of distribution of the parasite of syphilis.

We shall consider, first of all, the discovery of Schaudinn, although it was subsequent to the experimental researches made upon the anthropoids, cynocephali, and macaques.

*From the *Annales d'Oculistique*, December, 1906, and July, 1907, with additions by DR. MORAX.

To descriptions of the *technique* of staining spirochætes in smears and sections, and of the different experimental reactions produced by inoculation of men and animals with syphilitic tissues, we shall add a section devoted to the diagnosis of syphilis by examination of the special properties of syphilitic tissues and fluids.

I. **The Spirochæta pallida.** Synonym—**Treponema pallidum** (Schaudinn).

The identification of the parasite of syphilis is no exception to the rule that in biological science new discoveries are usually the direct or indirect results of improvements in *technique*, but we must recognise that other conditions have influenced it, as it may be said to have been the result of a mistaken interpretation.

About three years ago Dr. Siegel claimed in a communication to the Berlin Academy that he had discovered the parasite of syphilis in an organism very difficult to demonstrate, to which he gave the name of "cytorrhyctes luis," and attributed to it an ovoid form ending in a flagellum. Although the demonstration of the parasitic nature of the bodies which Siegel claimed to have discovered was far from convincing, so much interest was aroused that Schaudinn, who had made his reputation by work on the protozoa, in particular the trypanosomes, set himself to verify his assertions, and undertook, in company with Dr. Hoffmann, a Berlin syphilographer, the study of syphilitic products, in particular hard chancre. These observers, by applying to the microscopic examination of scrapings from these lesions the methods employed for the staining of trypanosomes, were able to establish the absence of the bodies described by Siegel, and the presence of a distinctive organism, which was very fine and of a spirillar form with fairly close helices. They also found the spirillum in glandular tissue, and because of its constant presence, its distinctive characters, and the absence of other organisms, they concluded that it was probably the parasitic agent of syphilitic infection.

Smears made with scrapings from open lesions, such as chancres or mucous patches of the genital regions, contain, in addition to various micro-organisms (micrococci or bacilli), two varieties of spirillar bodies. One of these, which stains well and has fairly wide helices and a considerable thickness, was previously known. Schaudinn gave it the name of spirochæta refringens, to differentiate it from the spirochæta pallida, which stains feebly, and had up to this time escaped detection. This spirochæta pallida is the organism which is found in the closed lesions of syphilis, and all probability points to it as the agent responsible for causing the disease.

Removal of Specimens for Examination.

In dealing with a chancre or secondary papule, the surface, having been first cleansed with cotton wool dipped in saline solution, is squeezed between the fingers, or a slide is rubbed over its surface, so as to make a little fluid exude. This is placed on the slide and spread out into a fine layer with a cover-glass. It is advisable to avoid hæmorrhage and the consequent admixture of red corpuscles.

In dealing with a primary glandular affection, a little of the fluid contents of the gland can be collected by puncturing with a rather large hypodermic needle and aspirating after slight dilaceration.

The spirochætes can be seen alive in these different specimens when examined in a hanging drop, but to do so requires much more skill than is necessary to recognise them in stained preparations. We shall not spend any time, therefore, in describing the method.

Examination of Smears for the Spirochætes.

I. We shall describe—first, the method by which Schaudinn demonstrated the spirochæta pallida, and, afterwards, the modifications of his staining which have been devised.

(a) Giemsa's method.—This is a modification of the method of Romanowski based on the mixture of eosine with azur blue. The stain used is a liquid of a violet colour sold under the name of "Giemsa's solution," the formula of which is as follows :—

"Azur II" eosine	...	3 grm.
"Azur III" ...	...	0·8 grm.
Pure glycerine ...	...	250 grm.
Methyl alcohol	...	250 grm.

A scraping from a syphilitic lesion is spread on a slide as described above, allowed to dry, and fixed by immersion in absolute alcohol for ten minutes. To stain it, one drop of Giemsa's mixture is added to 10 c.c. of tap water (some authors add from 1 to 10 drops of a 1 per cent. solution of carbonate of potash to this solution). The dark-blue liquid so obtained is put in a Borrel's tube, and the slide is placed vertically in it and left there for from two to twenty-four hours, when it is washed in water, dried, and examined with a 1/12 inch immersion objective and a No. 3 eyepiece. This examination requires very great visual attention. The spirillæ stain feebly rose-coloured or pale-violet, and several microscopic fields may have to be examined before one is found.

This first method of Giemsa can be made more rapid if the

stain be heated. The following are Preiss's method and Giemsa's new method. The *technique* recommended by Scherechewski is based on the same principle, *viz.*, the strengthening of the stain by heating. The tube containing the diluted Giemsa's solution is plunged in a water bath for from 10 to 15 minutes.

(b) *Preiss's method.*—Fix the smears in a flame. Dilute 25 drops of Giemsa's solution in 10 c.c. of water at a temperature of 30° to 40°C. Pour several drops on the slide and heat over a flame until steam is given off. Repeat the process three or four times with fresh quantities of Giemsa's solution. Wash in water.

(c) *Giemsa's new method.*—The *technique* is the same as in the previous method, the modification affecting only the concentration of the stain. Giemsa recommends a dilution of 10 drops of his solution with 10 c.c. of water. After heating until steam is given off, the stain is left to act for 15 seconds. The same process is repeated three times. After the third heating, the stain should act for 30 seconds. Giemsa recommends that the water used should not be acid, as is apt to be the case with distilled water.

(d) *Marino's method.*—In this a blue azur-eosine mixture, which is sold under the name of "Marino's powder," is used. Two solutions are prepared :—

Solution A.—Methyl alcohol	...	100 grm.
Marino's powder	...	0·25 grm.
Solution B.—Distilled water	...	200 grm.
Eosine (Höchst)	...	0·01 grm.

The smear, dried, but not fixed, is covered with several drops of solution A and kept without drying from 5 to 10 minutes, then *without washing*, several drops of solution B are placed on the smear and allowed to act on it for from three to five minutes. The preparation is then washed in water, dried, and examined with an immersion lens. The spirochætes are stained rose coloured, or pale violet. The method gives less perfect results than the previous one, but is more rapid.

II. The spirochætes can also be stained directly with gentian violet.

(e) Oppenheimer and Sachs allow carbolised solution of gentian violet to act on smears which have been dried but not fixed.

(f) Herxheimer recommends fixation of the specimens in alcohol and staining with a solution of gentian-violet saturated when hot and filtered. The staining takes 15 minutes. The specimen is then washed in water, dried, and mounted in balsam. By heating the solution, the time required for staining can be reduced to 30 seconds.

III. In the following methods, which we strongly recommend, the staining is preceded by the action of a mordant.

(g) The method of Proca and Vasilescu is rapid and gives good results. The smear is fixed with absolute alcohol. The specimen is mordanted by allowing solution A to act on it for 10 minutes in the cold, then washed in running water, and stained with solution B, after which it is again washed in water, dried, and mounted in balsam.

Solution A.—Pure carbolic acid 50 grm.
Tannin ... ... 40 grm.
Water ... ... 100 grm.
Basic fuchsin ... 2·50 grm. dissolved in
Absolute alcohol 100 grm.

Solution B.—Saturated alcoholic solution of gentian-violet ... 10 c.c.
Liquid carbolic acid ... 5 c.c.
Distilled water ... 100 c.c.

(h) Lœffler's method consists in mordanting with an arsenical solution before staining by Giemsa's method. The following reagents are prepared :—

(A) An 0·5 per cent. solution of malachite-green-chloride-zinc-crystal.

(B) An 0·5 per cent. solution of arseniate of soda.

(C) An 0·5 per cent. solution of pure glycerine.

The following are the steps of the method :—Fix the smears in alcohol-ether mixture. Mordant by pouring on the slide several drops of a mixture consisting of

3 drops of arsenical solution (B)
1 drop of malachite green solution (A)

and holding it over a flame until the liquid begins to boil. Wash in a fairly strong stream of water. Colour by pouring on the slide a boiling mixture consisting of

Glycerine solution (C) ... ... 5 c.c.
Giemsa's solution ... ... 5-10 drops.

Allow this to act for five minutes and then wash in water.

(i) Borrel and Burnet describe the following method, which gives an excellent staining of the spirochæte and even of its flagella in syphilitic lesions :—

A small piece of syphilitic tissue (chancre, papule, etc.) is excised. This is placed successively on several slides, on each of which a drop of distilled water has been put, and is scraped with the point of a bistoury so as to allow the products of the scraping to diffuse through the water, which is then allowed to dry. The specimen is then mordanted by pouring several drops of Lœffler's mordant on the slide, and heating carefully until it begins to boil. This mordanting is repeated three or four times

consecutively, after which the slide is washed in water. Some drops of Ziehl's fuchsin are then applied, and heated to boiling, when the slide is again washed in water.

The formula for Loeffler's mordant is :—

Aqueous solution of tannin ether (1 in 5) ...	10 c.c.
Aqueous solution of sulphate of iron (cold saturated)	5 c.c.
Saturated solution of fuchsin in absolute alcohol	1 c.c.

Ziehl's fuchsin solution is obtained by adding 90 c.c. of 5 per cent. carbolic solution gradually to a solution of 1 grm. of fuchsin in 10 c.c. of absolute alcohol.

A short time after the publications of Schaudinn and Hoffmann establishing the relations between the spirochæte and the lesions of acquired syphilis, the presence of the spirochæte in the organs of newly-born heredito-syphilitics was demonstrated by Buschke and Fischer (18th May, 1905) and by Levaditi (31st May, 1905). These observations were confirmed afterwards by a large number of other workers (Hoffmann, Babes and Panea, Bandi and Simonelli, Bodin, etc.).

Hitherto the published cases of conjunctival or palpebral chancre in which examination has been made for the spirochæte are few in number. Kowalewski has recorded the case of a patient with palpebral chancre in which the spirochætes were very numerous in smears (eight in each microscopic field). Aubineau and Chaillous have examined smears from conjunctival chancres and established the presence of spirochætes. Chaillous' specimens show that these micro-organisms are present in very large numbers in the lacrymal secretion collected from the conjunctival *cul-de-sac*. Sydney Stephenson has demonstrated the spirochætæ in scrapings from the corneæ of several cases of keratomalacia in syphilitic infants.

To sum up, examination for spirochætes in smears gives important results, and it will always be necessary to have recourse to it, but the images obtained by the methods which have just been described are far from being as clear as those obtained by the procedures available when dealing with sections of tissues. When the examination of smears has given a negative result, a small piece of diseased tissue (*e.g.*, wall of a chancre) may be excised, sectioned, and stained by one of the following methods :

Examination of Sections for Spirochætes.

Up to a certain point, the staining of spirochætes in sections gave unsatisfactory and untrustworthy results. It will suffice to say that Herxheimer and Hübner succeeded in staining spirillæ in

sections of a chancre with Nile blue, and that other observers got passable results with Giemsa's solution, although the differentiation of the spirochætes was bad. Bertarelli, Volpino, and Bovero, however, conceived the idea of applying to sections the silver impregnation method (the utility of which for staining the cilia of bacilli had been demonstrated by Van Ermenghen), and showed that when treated by it, the spirochætes stained brown or black in the tissues. Afterwards Levaditi got better results by employing Ramon y Cajal's method for staining nerve fibrils.

(I) The following is Levaditi's method as usually adopted :

1. Fixation of specimens, about 1 mm. thick, in 10 per cent. formol for 24 hours.

2. Washing and hardening in 96 per cent. alcohol for 24 hours.

3. Washing in distilled water for some minutes until the specimens sink to the bottom of the vessel.

4. Impregnation with a 1·5 per cent. or 3 per cent. solution of nitrate of silver in an incubator at 38° C. for three to five days (the latter strength is preferable for tissues removed from the living).

5. Washing in distilled water for several minutes, then reduction at the temperature of the room for 24 to 48 hours in the following solution (developer) :—

Pyrogallic acid...	2 to 4 per cent.
Formol (40 per cent. solution)	5 c.c.
Distilled water...	100 c.c.

6. Washing in distilled water, dehydration in alcohol followed by xylol, then embedding in paraffin, and sectioning.

The sections can be examined directly, when the spirillæ stand out in black or deep-brown against the yellow of the tissues. A more perfect contrast may, however, be obtained by staining the cells with an aniline dye. Any of the following methods may be used :—

(*a*) Staining for several minutes with Giemsa's mixture, washing in water, differentiation with absolute alcohol to which a few drops of oil of cloves have been added, then oil of bergamot, xylol, Canada balsam. (*b*) Staining for several minutes in a concentrated solution of Toluidine blue, differentiation in alcohol with addition of some drops of ether-glycerine mixture (Unna), oil of bergamot, xylol, Canada balsam.

With these contrast stains the cellular nuclei are coloured blue and the protoplasm a clear greenish-brown, against which the spirochætes stand out very clearly.

(d) This method has been improved by Levaditi and Manouélian, who at the present time recommend the following *technique* :—

(1), (2), (3), as above.

(4) impregnation in the following bath :—

1 per cent. solution of nitrate of silver ...	100 grm.
Pyridine	10 grm.

The pyridine is added just before use. It is a substance of penetrating odour, which should not be handled except in a fume chamber. The impregnation bath, with the specimen in it, is placed in a glass with a ground stopper in an incubator at 40°C. to 50°C. for four to six hours.

The above directions are particularly applicable to the examination for spirochætes in the walls of a chancre; for other tissues the time of impregnation ought to be shortened (personal communication)

Rapid washing in a 10 per cent. solution of pyridine.

Reduction in the following bath for several hours :—

4 per cent. solution of pyrogallic acid ...	100 grm.
Acetone	10 grm.
Pyridine	15 grm.

Embedding in paraffin or celloidin, sectioning and mounting, after staining with Unna's blue or toluidine blue.

The colouring of the spirillæ and the tissues is the same as in the preceding method, but the number of spirillæ impregnated is larger.

The methods which have just been described have rendered the study of the distribution of spirochætes in sections of chancres, secondary syphilides, etc., possible, and it will often be necessary to have recourse to them in clinical work. *The technique must be very carefully followed if failure is to be avoided.*

Disposition of the Spirochætæ.

The following are some brief descriptions of the arrangement of the spirochætes in different lesions.

The localisation of the spirochætes in chancres has been studied by Burnett and Vincent, by Levaditi and Manouélian, and by others. They are numerous in young chancres especially, in the papillæ near the ulcer and in the sub-epidermic connective tissue. The reaction is manifestly one of mononuclear cells. In very young chancres the vascular lesions appear to consist of a periarteritis. The spirochætes are found in the lumen and in the walls of the vessels, and are present in large numbers in the deep layers of the chancre.

In the spots of syphilitic roseola, Veillon and Girard have seen dilatation of the capillaries of the papillæ and sub-papillary zones of the skin with a commencing infiltration of mononuclear cells. The spirochætes are found in the terminal capillaries of the

papillæ and in some of the sub-papillary vessels; some are also present in the perivascular nodules.

Cutaneous syphilides lend themselves well to examination for spirochætes, either in smears or in sections.

With reference to gummatous lesions it is important to know that spirillæ seem very rare in them, and are not met with in their contents but only in their walls (Doutrelepont and Grouven).

Mention must also be made of the researches of H. Bab, who showed the presence of spirochætes in the cornea, choroid, etc., of eyeballs from syphilitic fœtuses.

The animal and human affections associated with the development of spirochætes, the acute or chronic spirilloses, are usually characterised by an extreme proliferation of the parasite in the blood. There was, therefore, an indication that a search should be made in the blood for Schaudinn's spirochæta, and the practical importance of its recognition if it existed in abundance in the circulation was evident. It was quickly recognised, however, that examination of the blood gave very inconstant results owing to the small number of parasites present. Noeggerath and Staehlin advise that one part of blood should be diluted with 10 parts of 1 in 300 acetic acid and centrifuged, and that the deposit should be examined on smears after staining by Giemsa's method. The following method is suggested by Nattan-Larrier and Bergeron.—A vein is punctured and 10 c.c. of blood removed: this is mixed in 100 c.c. of distilled water, and centrifuged as soon as hæmolysis is complete; the deposit is spread on slides, fixed with alcohol-ether, and coloured by the silver method or with Heidenhain's iron-hæmatoxyline.

(*To be continued.*)

INJURIES TO THE EYES OF THE CHILD DURING LABOUR

(*continued*).

BY

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(*Translated by* ROSA FORD, M.B.Lond.)

AUTHOR.	REFERENCE.	CONDITION OF CHILD.	DETAILS OF LABOUR.
Simeon Snell	"Avulsion of the eyeball by midwifery forceps." *Transact. of the Ophth. Society*. Vol. XXIII, 1903.	L. eyeball torn out, and attached to the orbital tissue only by a few strands of connective tissue. Mark of forceps over left eye. Facial paralysis, lower ½ of R. side	Narrow pelvis. High forceps. Difficult extraction.
Thomson & Buchanan	*Loc. cit.*	Left eye lies on the cheek, only held by conjunctiva and ext. rectus. Large spoon-shaped depression on left frontal and parietal bones. No tear of eyelids, under lid somewhat swollen. R. corneal opacity.	38 years old. Multip. Narrow pelvis. Unusually large head. Head in trans. diam. of the pelvis. Repeated application of axis-traction forceps on the head in its longitudinal diameter, somewhat obliquely. Delivery only accomplished after symphysiotomy. In the pelvic outlet the forceps were applied in the biparietal diameter.
Lomer	"Über Frakturen des kindl. Schadels durch die Zange." *Zeitschr. f. Geburtsh. u. Gynäk.*, Bd. X, 1884.	Pressure marks on the frontal bone. Infiltration and œdema of the eyelids. Moderate R. exophthalmos. No extravasation of blood in the anterior chamber of the eye. Section :— Intracranial fracture of roof of R. orbit. Orbit partly filled with a blood effusion.	Head lay over the pelvic brim in the 1st vertex position. Sagittal suture transverse. Pelvis in moderate degree flattened. Forceps so applied that the R. blade, corresponding to the position of the head, came to lie in front in the pelvic brim. Difficult extraction. The forceps were applied by Geheimrat Schröder himself.
Dittrich	*Loc. cit.*	On the R. frontal bone a spoon-shaped impression. Protrusion of globe L. side. Facial paralysis. Fracture of L. orbital roof.	26 years old. Multip. 2. Generally contracted pelvis. Spines 23, Crests 26, Trochant. 29.5, Diag. Conj. 10.5, Conj. vera 9 cms. First vertex position. Only a small portion of the head through the pelvic brim. Breus' forceps. Difficult extraction.

Author.	Reference.	Condition of Child.	Details of Labour.
Dittrich	*Loc. cit.*	*Post-mortem* findings. — At the R. ext. angle of the eye a bluish-red-coloured spot, the size of a hemp-seed and infiltrated, above which is a streak-like excoriation, and below which is a broad, bright red, slightly excoriated portion of skin, which at the same time is depressed. The R. globe, protruding through the palpebral aperture, the lower lid torn away at the int. angle. The muscles up to the rect., ext. and int. torn through. The cornea markedly cloudy. Cleft in R. parietal bone.	Frontal presentation : 2nd position. Skull impacted in pelvic brim. Caput succedaneum. Sagittal suture in L. oblique diameter of pelvic brim, the large fontanelle to the left, behind, distinctly deeper than the right small fontanelle in front. Axis-traction forceps in transverse diameter of pelvic brim. With a little traction the head came down.
B. Wolff	Case I in the text.	Exophthalmos. The child died after bleeding from nose and mouth had set in.	Generally-contracted pelvis. Spines 24, crests 26½, diag. conj. 10 cms. 2nd vertex presentation. High axis-traction forceps.
Servel	"Des fractures et enfoncements du frontal chez le fœtus pendant l'accouchement, etc." *Thèse de Lyon*, 1901. Obs. II.	Left eye partly out in front of the orbit. Corneal opacity.	Narrow pelvis. High forceps.
Peck	"Traumatic cataract in an infant's eye from pressure of forceps." *Medical News*, 1898. Vol. LXXIII.	Marked subconjunctival blood effusion. Swelling of the lid and flattening of the globe. From this injury a traumatic cataract developed.	Primipara. High forceps. The right blade was over the right eye and in fact on the lower lid.
Finkelstein and B. Wolff	Finkelstein, "Die durch Geburtstraumen hervorgerufenen Krankheiten des Säuglings." *Berl. Klinik.* Heft. 168, 1902. B. Wolff. Case II in text.	Convulsions. Crushing of the left globe. Corneal opacity.	Rickety flat pelvis. Diag. conj. 11 cms. 1st vertex position. Head in pelvic brim. Forceps.

Author.	Reference.	Condition of Child.	Details of Labour.
Wintersteiner	"Beitr. zur Kenntnis der Geburtsverletzungen des Auges." *Zeitschr. f. Augenheilkunde*, 1899.	At birth, conjunctivæ infiltrated with blood and dark red, the anterior chambers full of blood. The child died after 9 days from unstaunchable epistaxis. W. undertook the pathol.-anat. examination of the eye and found: diffuse extensive flat extravasations of blood between the ciliary body and sclerotic in the sub-arachnoid reaching back to near the equator of the globe, in the episclera and in the sclerotic. In the anterior and posterior chambers of the eyes, remains of larger blood collections; on the other hand, the optic nerve, the posterior part of the choroid, and almost the whole retina were free from extravasation.	26 years. Primip. Generally contracted pelvis. Conj. vera. 9 cms. Forceps to the head in the pelvic brim. Deeply asphyxiated child revived. W. thinks that through the direct pressure of the forceps blade, on the one side a crushing of the globe, on the other side a fracture of the ethmoidal cells had taken place—since no other explanation for the deleterious bleeding could be found.
Leopold	"Über Verletzungen der Mutter und des Kindes durch die Kopfzange." *Centralbl. für Gynäkol.*, 1902. S. 431.	Severe crushing of the frontal bone and the soft parts. Blood extravasated under conjunctiva of both eyes and both anterior chambers filled with blood.	The forceps were applied to the head while it was still high up.
Nagel	"Die Wendung bei engem Becken." *Archiv f. Gynäkol.*, Bd. XXXIV, S. 83, 1889.	R. sided facial paralysis. Pressure marks on the R. eye, R. and L. frontal bones. L. parietal bone, and R. process, mastoid.	25 years. Primip. Spines 25. Crests 27·5, Trochs. 30. Ext. conj. 17·5 cms. Head high in pelvic brim. Difficult forceps extraction.

Author.	Reference.	Condition of Child.	Details of Labour.
Nagel	"Erfahrungen ueber die Anwendung der Achsenzugzange." *Archiv. f. Gyn.*, Bd. XXXIX, 1891.	On the 2nd day, total opacity of the cornea of the left eye, disappearing after a few days.	26 years. Primip. Spines 24·5. Crests 27. Conj. ext. 17·5 cms. 4th vertex position. 32 hours after the rupture of the membranes, head in pelvic brim, a small part having passed through. Promontory reachable. Large fontanelle R. front, sagittal suture in L. oblique diameter, approaching the transverse. Occiput only a little descended. Forceps.
Nagel	*Ibid.*	Total opacity of the cornea, which only disappeared after a few weeks. Child died 6 weeks later from malnutrition.	25 years. Primipara. Spines 24. Crests 27. Cong. ext. 17·5—40 hours after rupture of membranes, a small portion of the head had passed through the pelvic brim. Promontory reachable. Sagittal suture in R. oblique diameter, approaching the transverse; small fontanelle, left front. Occiput descended. Os good 5s. piece. Forceps.
Nagel	*Ibid.*	Fracture of R. frontal bone. Corneal dulness and intra-ocular hæmorrhage in L. eye.	24 years. Primipara. Spines 27. Crests 29. Trochs. 32. Conj. ext. 18. Conj. diag. 10½ cms. II. vertex position. Promontory still reachable; about ⅓ of the circumference of the head through the pelvic brim. Sagittal suture in L. oblique diameter. Small fontanelle R. front. Occiput descended. Axis-traction forceps. L. blade lay over the L. frontal bone and the L. eye. R. blade lay over the R. ear.

Author.	Reference.	Condition of Child.	Details of Labour.
Nagel	*Ibid.*	Excoriation of skin under L. eye. Swelling of lids.	37 years. M_3. Spines 26·5. Crests 29. Conj. ext. 18·5. Conj. diag. 11 cms. Marked stretching of the lower uterine segment. 1st vertex position. Promontory still reachable. About ¼ circumference of head through the pelvic brim. Sagittal suture in L. oblique diameter, approaching the transverse. Large fontanelle R. front. Occiput a little descended. Axis-traction forceps. R. blade lay over the L. frontal bone and L. E., the L. blade over the R. occiput.

(To be continued.)

CURRENT LITERATURE.

NOTE. Communications of which the titles only are given either contain nothing new or else do not lend themselves to abstract.

I.—THE AQUEOUS HUMOUR.

(1) Coppez, H.—**The nutritive value of the aqueous humour.**

(2) Türk, S.—**Observations on a current in the anterior chamber.** Graefe's *Archiv für Ophthal.*, Oktober 16, 1906.

(3) Leber, A.—**Immunity in the anterior chamber.** Graefe's *Archiv für Ophthal.*, Oktober 16, 1906.

(4) Scalinci, Noé.—**Investigations into the physico-chemical properties of the aqueous humour.** *Archiv f. Augenheilk.*, Mai, 1907.

(5) Scalinci, Noé.—**On the nature and mechanism of the production of the endo-ocular liquid.** *Archives d'ophtalmologie*, juin, 1907.

(1) On a level with the ciliary processes there are large veins in contact with the lining epithelium; the transudation will contain sufficient albumen, and will serve to nourish the crystalline lens and the anterior layers of the vitreous body

(the posterior aqueous humour). On the other hand, the transudation which has filtered through the stroma of the iris will be deprived of its albumen and will not be able to co-operate in the nutrition of the cornea (anterior aqueous humour). Should the exudation become abnormal, the cornea becomes permeated, in conformity with the laws of osmosis, by the foreign soluble substances contained in the fluid of the anterior chamber. The humours of the eye are stagnant fluids, the tension of which is lower than that of the venous blood; they do not enter by filtration into the sanguineous circulation: they return into it by osmosis if the osmotic tension becomes greater in the chambers of the eye. The angle of filtration of the anterior chamber is, as a matter of fact, an angle of osmosis. H. COPPEZ.

(2) The results of **Türk's** researches are as follows: 1. In the anterior chamber of the rabbit, and, probably, of all the other animals with eyes of a similar type, we find a current which, in the erect posture of the body, ascends along the posterior wall, and sinks along the anterior one; it is due to the warming of the chamber water at the posterior wall, and its cooling along the cornea. 2. The existence of this current explains the formation of Ehrlich's fluoresceïn line, as well as the triangular arrangement of precipitates along the posterior surface of the cornea. R. GRUBER.

(3) **A. Leber** repeats and supplements the experiments of Perles, Lobanow, Wessely, Roemer, and others on the specific action of the chamber water on microbes and toxins. He uses the typhus bacillus and cholera vibrio. He arrives at the following conclusions: the secretory organs of the aqueous humour have the power to increase the immunising action of the chamber water, which is small under ordinary circumstances. This takes place both in active immunity — when the antibodies are formed within the organism — and in passive immunity—when they are introduced from without. This increase of the natural protective power of the humour is effected by subconjunctival injections; possibly this is due to the increase of complements, which are necessary to the action of the bacteriolytic amboceptors and which are not numerous enough under normal conditions. R. GRUBER.

(4) **Scalinci's** paper is a record of a series of experiments regarding the osmotic pressure, the electrical conductivity, and the viscosity of the aqueous humour. He examined the aqueous (1) under normal conditions, (2) after some of it had been removed one or two hours previously, (3) after intravenous injections of hypertonic and hypotonic solutions of NaCl, (4) after instilling mydriatics, myotics, etc., (5) after stimulation of

the sympathetic and trigeminus, and (6) after injections of NaFl into the anterior chamber. His investigations lead him to say that the aqueous humour possesses physico-chemical properties which distinguish it from lymph, that it is secreted by the ciliary epithelium, that the secretion contains NaCl in such proportions as to attract sufficient water to maintain the intra-ocular pressure, that the secretion, like that of the kidneys, is not governed by a nerve-mechanism similar to that which regulates the secretion of saliva and gastric juice. PERCIVAL J. HAY.

(5) **Scalinci** sets out to oppose the current view, namely, that the aqueous humour is a filtration product from the ciliary processes. Why should the process of filtration (he enquires) be limited to the ciliary region, and why should it not take place from other vascular parts of the eye, as the choroid or the iris, unless there is actually a special organ or tissue destined for the production of the fluid? This is found, in the author's opinion, in the ciliary epithelium. Once more, the intra-ocular fluid should not be considered as a filtrate analogous to lymph, since it does not reproduce the composition of the fluid from which it is supposed to be derived. Thus, the endo-ocular fluid contains no lymphocytes, neither does it coagulate spontaneously. It is exceedingly poor in proteids, and includes more saline than does blood-serum. Again, recent researches have shown that aqueous humour has a greater molecular concentration (Manca, Hamburger) and a greater electrical conductivity (Bottazzi and Sturchio) as compared with blood-serum from the same animal, and a viscosity very different from that of distilled water. To the argument that variations in the molecular concentration of the blood are capable of modifying that of the aqueous humour (Cantonnet), Scalinci opposes the fact that the same phenomenon has been observed in the cases of liquids of a secretory nature—as, for example, the saliva. Scalinci believes that in view of the foregoing facts it can no longer be maintained that the aqueous humour is a product of filtration. On the contrary, it represents a secretion from the ciliary epithelium. In point of fact, the production of the aqueous humour depends intimately upon the vital integrity of the epithelium in question, and its normal constitution upon the equilibrium between the endo-vascular pressure, on the one hand, and the endo-ocular pressure, on the other. Experiments on dogs with fluorescein show that it is essentially a process of glandular secretion. After that substance has been injected, the epithelial cells become inert, with the consequence that aqueous humour, properly so-called, is replaced by plasma filtered from the blood capillaries. The plasma contains fibrinogen, so that the fluid now coagulates spontaneously.

Leber and his pupils affirm that the quantity of the aqueous humour is proportionate to the difference between the pressure within and without the blood-vessels of the eye, and that the quality likewise varies under the same conditions—that is to say, when the external pressure diminishes the proteid contents increase and the fluid coagulates. As to the first statement, Niessnamoff omitted to ascertain the exact composition of the fluid that filled the anterior chamber when pressure was at *zero* in consequence of evacuation. Scalinci maintains that under these circumstances the true aqueous humour had been replaced by a liquid whose chemico-physical qualities closely resembled those of blood-plasma. A similar fallacy, he thinks, underlies the experiments dealing with the quality of the fluid.

Scalinci sums up an interesting article with the following words :—" We must now admit that the aqueous humour is not lymph, but a product of the cellular activity of the ciliary epithelium, by the destruction of which the secretion is arrested. The secretion does not appear to depend on the influence of a nervous mechanism, analogous to that governing the salivary and gastric secretions. Lastly, the principal phenomenon of the secretion seems to consist in the passage of salts, especially sodium chloride, towards the cavity of the eye in sufficient quantity to maintain, by the absorption of water, a high and constant hydraulic pressure within the eyeball, in accordance with the mechanism described by Bottazzi and Sturchio " (*Archivio di Ottalmologia*, Vol. XIII, 1906, and *Archiv. italiennes de Biologie*, 1906). SYDNEY STEPHENSON.

II.—BOTTLE MAKERS' CATARACT.

(1) **Snell, Simeon.—An inquiry into the alleged frequency of cataract in bottle makers.** *British Medical Journal*, January 5th, 1907.

(2) **Robinson, William.—On bottle makers' cataract.** *British Medical Journal*, August 17th, 1907.

(3) **Thompson, J. Tatham.—Bottle makers' cataract.** *British Medical Journal*, August 31st, 1907.

(1) **Snell**, finding himself unable to agree with the opinions of Meyhofer, Robinson, Hirschberg, and others as to the unusual frequency of cataract in those exposed to great heat in the manufacture of bottles, undertook a careful and extended inquiry, both personally and by correspondence, among a number of bottle-making firms. Further, Snell's personal experience of the

operatives in and around Sheffield, which town may be looked upon as the centre of the largest district of the industry, is necessarily extensive. The result of this inquiry, as set out in detail by the author, is undoubtedly to indicate that, at any rate in this country, there is no special liability to cataract among bottle workers. Snell gives a good description of the duties of the various workers, namely, the gatherer, blower, wetter-off, and bottle finisher. He states that the "gatherer" is more exposed to the heat than, although not so continuously as, the "finisher," and that among the workmen themselves the occupation of gathering is considered to be the most trying to the eyes.

(2) **Robinson,** whose original paper on this subject was published in the *British Medical Journal* of January 24th, 1903,* after more extended investigation (which had been stimulated by Snell's refusal to accept the view that bottle makers are specially prone to cataract (*Ibid*, January 5th, 1907, abstracted above), returns to his proposition that *ordinary* bottle makers—*i.e.*, not flint bottle makers—are specially liable to develop cataract, that the cataract usually begins in the posterior layers of the cortex, and that the liability to cataract among those employed in bottle works depends upon the number of hours per day during which the eyes are exposed to fierce heat from the furnace. It appears that ordinary bottles are made at large tanks heated by coal gas, that these tanks are at 2500°F., and that the eyes of those operatives who are most liable to cataract, namely, the finishers, are exposed to the glare and heat for five-and-a-half hours per week, whereas the operatives who do not tend to develop cataract are not so long exposed. The various duties of the "founder," "gatherer," "blower," and "finisher" are detailed.

On the other hand, in flint bottle making the heat is not nearly so great, and the eyes are not exposed to it. These operatives are not prone to cataract. The statements and arguments are supported by statistical tables, of which an abstract is impossible, but it may be stated that, in connection with works in the Sunderland district, employing altogether 400 hands, 40 are known to have cataract. Again, of 114 superannuated glass workers of all classes, 37, or 32.4 per cent. suffered from cataract.

Bottle maker's cataract, though commencing in the posterior cortex, is a primary cataract and is not associated with fundus mischief; at its commencement it is cobweb-like and saucer-shaped owing to the opacity being immediately within the posterior capsule. The outline is irregular and not radial nor rosette-shaped. Robinson states that cataract does not appear

* For abstract see THE OPHTHALMOSCOPE, August, 1903, p. 58.

to be common in iron and steel workers, and attributes this to the fact that the eyes of the men are not exposed to the heat to anything like the same extent as the "bottle finisher" who, of all bottle workers, is most liable to cataract.

The author's suggestion, in his former paper, that dark goggles should be worn, has been partially adopted, and "there is already a belief amongst the men that the glasses have done much good."

(3) **Thompson**, referring to Robinson's paper, states that although it may be true of the present generation that cataract is not common among steel and iron workers, yet twenty years ago a very considerable proportion of his cataract patients were puddlers. Thompson seems to imply that as there are nowadays, with the Bessemer and Siemens-Martin process, no puddlers and no intense heat, though a great deal of glare, a diminution in the number of cataract cases may be accounted for by this difference in the conditions regarding heat. He refers to a statement which has been made that makers of Venetian glass at Murano rarely reach middle age without loss of sight from cataract or optic atrophy.

Perusal of the three abstracts given above shows that different observers hold diametrically opposed opinions on this interesting subject. The statistical and other details should be studied in the original papers. ERNEST THOMSON.

III.—PHLYCTENULAR OPHTHALMIA.

(1) **Nias, J. B. and Paton, Leslie.—The opsonic index for tubercle in phlyctenular conjunctivitis.** *Trans. Ophthal. Society*, Vol. XXVI, 1906, p. 232.

(2) **Ibidem.—A contribution to the study of phlyctenular ophthalmia.** *Lancet*, December 1st, 1906.

The investigations of **Nias** and **Paton**, outlined below, which were undertaken on the suggestion of Sir A. E. Wright, of St. Mary's Hospital, London, appear to cast some light on the ill-understood pathogenesis of that common affection, phlyctenular inflammation of the eye. In the earlier communication (1) they enter into the theory of opsonins and explain the practical way of investigating the power, or opsonic index, possessed by serum of inducing phagocytosis. They add tables showing particulars of twenty cases of phlyctenular ulcer tested against the tubercle bacillus, of eight cases of other forms of conjunctivitis tested

against the same bacillus, and, lastly, of seven control cases tested against the staphylococcus. The second and later communication (2) is of a more general and, we may add, of a more comprehensible, character. That phlyctenular ophthalmia is due to the infarction of dead or attenuated tubercle bacillus is an idea that has occurred to the minds of more than one clinical observer. It has been supposed that the organisms have escaped from some latent or clinically unidentified focus of tuberculosis. Nias and Paton find that the blood of such patients behaves in a manner which is quite typical of a definite tuberculous infection. In other words, its activity in opsonic action on the tubercle bacillus fluctuates in a marked and definite manner above and below the normal in accordance with the progress of the case. This conclusion they have reached as the result of making systematic examinations of the blood in upwards of fifty patients suffering from phlyctenular conjunctivitis. At the onset of a case the blood of a patient affected with phlyctenular ophthalmia is usually found to be markedly deficient in opsonic power to the tubercle bacillus, but not to other organisms, such as the staphylococcus. Now if the patient be adequately treated, apart from tuberculin, the opsonic index rapidly rises and attains a maximum which coincides with the healing of the ulcers. It then begins to fall, and in the course of a few days is far below the normal, as if from exhaustion of the mechanism. It will remain at this low figure, but if a relapse of the conjunctival inflammation occurs, the same sequence of events will be reproduced. In a minority of cases the opsonic index as regards tubercle will be found to have risen already much above the normal. There it will remain, with temporary falls, until healing occurs, and it will then take a terminal drop, as in the former category. The authors have yet to meet with a single exception to this course in phlyctenular conjunctivitis. The authors claim that their observations of the opsonic index go far to furnish support to the hypothesis that phlyctenular ulcers are due to the escape of attenuated or dead bacilli from some identified or unidentified focus of tuberculous disease.

SYDNEY STEPHENSON.

IV.—THE OPHTHALMO-REACTION OF CALMETTE.

(1) **Grasset and Rimbaud.—Preliminary applications of the ophthalmo-reaction of tuberculine.** (**Premières applications d'ophtalmo-réaction à la tuberculine.**) *Gazette des Hôpitaux*, 31 août, 1907.

(2) **Brunetière.—The employment of the ophthalmo-reaction in ophthalmology.** (**L'ophtalmo-réaction ; son emploi en oculistique.**) *L'Ophtalmologie provinciale*, août, 1907.

In THE OPHTHALMOSCOPE for last month (p. 509) several communications referring to the ophthalmo-reaction of Calmette were analysed. The ways of employing the test were described, and its diagnostic possibilities touched upon. **Grasset** and **Rimbaud** (1) have obtained positive results in several cases, and believe that Calmette has endowed us with a most valuable means of diagnosing tuberculosis. At the same time they do not countenance the indiscriminate employment of tuberculine in this way, since there are difficulties of interpretation and some risk of causing considerable mental distress in those who suffer from insignificant and perfectly curable forms of tuberculosis. **Brunetière** (2), who enters somewhat fully into the *technique* of the test, has obtained negative results in three eye cases—kerato-iritis, interstitial keratitis, and exudative choroiditis—occurring in patients none of whom was known to be tuberculous. He quotes Painblan, of Lille, as having obtained the ophthalmo-reaction in two subjects affected with tuberculosis of the conjunctiva. The reaction lasted six days in the one case and eight days in the other. It is interesting and suggestive to note that one of Painblan's patients showed a distinct improvement after the application. According to Calmette, ordinary tuberculine or the old tuberculine of Koch must never be used in making the test. As explained previously in THE OPHTHALMOSCOPE (*loco citato*), one part of dry tuberculine, precipitated by alcohol, is dissolved in one hundred parts of sterilized water, and of this liquid one or two drops are placed in the eye to be tested. The dry tuberculine is now dispensed in tiny glass tubes,* and the necessary solution can be prepared extemporaneously by any practitioner. Brunetière points out that any inflammation of the external parts of the eye may mask the reaction produced by tuberculine, although when the inflammation affects one eye alone, the liquid may be dropped into the sound eye. If both eyes be inflamed, recourse must be had, as heretofore, to the injection of ordinary tuberculine. Indeed, the two methods, the injection of tuberculine and the ophthalmo-reaction, supplement and complement each other. Thus, when dealing with an affection of the eye believed to be tuberculous, one commences by trying, whenever possible, the ophthalmo-reaction, and in most cases the results are exact enough to confirm or to negative the diagnosis. On the other hand, if Calmette's reaction cannot

* To be obtained from Mr. Martindale, 10, New Cavendish Street, London, W.

be carried out, or if it is not sufficiently convincing, tuberculine is injected, according to the method employed in almost all the German ophthalmological *kliniks*. SYDNEY STEPHENSON.

V.—IMMUNITY.

Parsons, J. Herbert.—Ehrlich's theory of immunity in its relationship to ophthalmology. *Royal London Ophthalmic Hospital Reports*, Vol. 16, Part 4.

In this long and learned paper **Parsons** goes into the whole question of immunity. He describes Ehrlich's theory, and refers to the work which has been done on the subject. Anyone who is interested in the actions of toxins and anti-toxins, and the theory on which they are supposed to perform their work, cannot do better than consult this paper, for it will save him hours of searching of original papers, mostly in the German language. It is, however, far too complicated to give an abstract which would be intelligible to those who know little or nothing of the subject. Parsons applies the theory to such cases as sympathetic ophthalmitis, and brings forward strong evidence against the ciliary nerve theory of the disease. He discusses the action of bacteriolysins, opsonins, agglutinins, precipitins, and cytotoxins. The conjectures of Römer are given as to the causation of senile cataract deduced from the side-chain theory. He finally expresses the opinion that the work which has been done on cytotoxins in general is the weakest part of the structure which has been built on the basis of the side-chain theory. Further researches will, however, he thinks, eventuate in the discovery of some general principle underlying these complex problems.

C. D. MARSHALL.

VI.—HYDATID CYST OF THE ORBIT.

(1) **Willoughby-Smith, H. B.—Hydatid cyst of the orbit.** *Transvaal Medical Journal*, May, 1906.

(2) **Calderaro (Palermo). — Hydatid cyst of the orbit. (Cisti da echinococco nell 'orbita.)** *La Clinica Oculistica*, Marzo—Aprile, 1907.

(1) A Zulu lad, ten years of age, presented proptosis of one eye, together with ptosis of the corresponding upper lid and an

ulcerated condition of the lower half of the cornea. A hard tumour was to be felt slightly to the inner side of the back of the orbital cavity. **Willoughby-Smith** made an incision through the upper lid and exposed a cyst, from which he drew off by aspiration about two drachms of clear, watery fluid. On opening the cavity of the cyst, a quantity of endocyst wall and daughter cysts were removed. As soon as the cyst was emptied, the eyeball fell back into position. Microscopical examination showed numerous scolices and hooklets of the tænia echinococcus. The result of the case was good.

(2) Hydatid cyst of the orbit being of rare occurrence, **Calderaro** deemed it useful to give to the press a detailed account of a case which came under his treatment, and which he operated on with good result. The clinical symptoms proper to hydatid cyst of the orbit, besides those common to other tumours situated in the same locality, may be summed up as follows: their slow progress, which may last for years; the pain, attributed to the irritating action of the substances excreted by the parasite; fluctuation, where the cyst is not very tense; very rarely the presence of hydatid thrill (Werniche); and, finally, the impairment of vision due to atrophy of the optic nerve. All the above symptoms, however, are not to be found in every case. On the contrary, in the case observed by the author, they were nearly all absent, and the diagnosis was hence rendered not only difficult, but well nigh impossible. He was therefore obliged to aspirate by means of a hypodermic syringe part of the fluid contents, and on examination it was found to contain traces of albumen, chlorides, together with numerous minute hooklets and scolices. The above aspiration was followed by inflammation of the orbit and palpebral œdema, and the extirpation of the cyst by Krönlein's method became necessary. A month after the operation the patient had recovered completely, the only *sequela* being a displacement of the eyeball downwards, to rectify which tenotomy of the inferior rectus tendon, with advancement of the superior rectus, was resorted to. The article contains various illustrations, and winds up with an extensive bibliography on tænia echinococcus. CHARLES MANCHÉ.

VII.—DISTURBANCES OF IRIS REFLEXES IN GENERAL PARALYSIS.

Marandon de Montagel E.—Isolated and simultaneous disturbances of the iris reflexes in general paralysis. (Troubles isolés et simultanés des reflexes iriens dans la paralysis générale.) *Gazette des Hôpitaux*, 15 février, 1906.

Marandon de Montagel has spent many months in studying the iris reflexes of general paralytics, following up the individual patients from the earliest phase of the disease until death—making, that is to say, repeated examinations of the individual patient. The results obtained show that great variations occur in the iris signs in any one patient during the three periods of his disease. These results are of a very statistical nature, and those interested ought certainly to refer to the original paper, in which, in tabulated form, it is shown how often the light reflex alone is all the time normal or abnormal, the accommodation reflex alone normal or abnormal, both reflexes normal for a time, both reflexes abnormal for a time, light reflex normal for a time with accommodation abnormal, light reflex for a time abnormal with accommodation normal. ERNEST THOMSON.

VIII.—THE AFTER-TREATMENT OF CATARACT PATIENTS.

(1) **Roure.—On the inconveniences of too rigid immobilisation of patients operated on for cataract.** (Des inconvénients de l'immobilisation trop rigoureuse chez les opérés de cataracte.) *Ann. d'Oculistique*, T. CXXXVII, p. 222, mars, 1907.

(2) **Scales, J. W.—Immediate after-treatment of patients operated on for cataract (without bandage).** *Journal of the American Medical Association*, June 22nd, 1907.

(3) **Wilder, William B.—Immediate after-treatment of patients operated on for cataract (with bandage).** *Journal of the American Medical Association*, June 22, 1907.

(1) **Roure** has noticed that on the day following operation for cataract arthritic patients, and particularly those who are most careful to avoid all movements, frequently have anorexia with a furred tongue and an odour of acetone in the breath, accompanied by conjunctival injection, contraction of the pupil, and a tendency to the formation of synechiæ. He finds that this condition is not influenced by dieting or general treatment, but ceases in a few hours if the patients are allowed to get up. He therefore considers that recovery from cataract operations is hindered rather than helped by insisting on absolute quietness, and, as a rule, allows his patients to get up at the end of 24 or 48 hours. R. J. COULTER.

(2) **Scales** says that there are five essential reasons why we should advise the non-use of the bandage in such cases. First.—The bandage interferes with natural drainage and brings about a retention of secretions, which is to be avoided. Second.—The bandage interferes with uniform pressure on the wound and ball of the eye, such as would be maintained by the natural position of the lid itself. Third.—It creates a feeling of discomfort and restlessness, which interferes with the healing process in that it increases the involuntary mobility of the eye. Fourth.—It is a factor in producing entropion of the lower lid, which in many cases is exceedingly difficult to avoid; and Fifth.—It is a factor in producing conjunctivitis, iritis, and cyclitis. C. A. OLIVER.

(3.) Much of the success in the management of cataract cases, **Wilder** tells us, depends upon skilful after-treatment, "and of this too great emphasis cannot be placed on the importance of general conditions and their appropriate treatment." Furthermore, he says, "much will depend on the previous preparation of the case to prevent both local and general complications." He reminds us that "while every precaution should be taken and every possible care be bestowed on the numerous details in the management of the case, it should be remembered that too much zeal in local applications may sometimes lead one into error."

C. A. OLIVER.

IX.—EXAMINATION OF THE BLOOD IN CASES OF IRITIS.

Terrien, F. and Cantonnet, A.—The corpuscular elements of blood and the ætiological diagnosis of iritis. (Les éléments figurés du sang et le diagnostic étiologique des iritis.) *Archives d'ophtalmologie*, mai, 1907.

From the eye *clinique* of the Hôtel-Dieu, Paris, **Terrien** and **Cantonnet** report a series of suggestive observations upon the diagnostic value of the corpuscular elements of the blood in cases of inflammation of the iris. Every case of iritis, as they point out, with the exception of those due to local infections of the eye, is the outcome of a localisation in the iris of some causal agent, be it microbe, toxin, or otherwise, developed within the economy. In a word, iritis may be characterised as the local manifestation of a general malady. The latter may be acute or chronic, serious or trivial, or, indeed, so slight that its existence may not be revealed even by the most attentive clinical examination. It nevertheless exists.

There is no better way of investigating the general state of patients affected with a seemingly local disorder than by examining the blood. This the authors set themselves to do in 38 cases of iritis, syphilitic and otherwise. The percentage of hæmoglobin was estimated by comparison with Tallqvist's tables; the enumeration of the corpuscles by the Malassez method; and the leucocytes were differentiated by staining with hæmatein-eosine, according to Leredde, and by the employment of Ehrlich's triacid stain after fixation of the blood-film by osmic acid vapour, according to Dominici.

The thirty-eight cases in which the blood was examined included nineteen cases of syphilitic iritis (2 hereditary; 6 early and 9 late tertiary; and 2 secondary); and nineteen cases of non-syphilitic iritis (influenza, 7; gonorrhœa, 3; acute rheumatism, 2; chronic rheumatism, 2; sympathetic, 4; and traumatic, 1). Of the last-named cases Terrien and Cantonnet place on one side the seven cases due respectively to traumatism, rheumatoid arthritis, and sympathetic disease, thereby leaving for comparison with the nineteen syphilitic cases twelve non-syphilitic cases due to the acute infections of influenza, gonorrhœa, and rheumatism. The following table places in relief: (1) the normal composition of the blood according to Jolly, Leredde, and Bezançon; and the average finding (2) in the authors' nineteen cases of syphilitic iritis; and (3) in the authors' twelve cases of non-syphilitic iritis. The age of the patients averaged 35·4 years for the syphilitic and 36 years for the others. The influence of digestion and of menstruation upon the number of leucocytes was taken into account.

	Red Blood Cells.	Hæmoglobin.	Leucocytes.	Polymuclears.	Lymphocytes.	Large Mononuclears.	Eosinophiles.	Total Mononuclears.
1. Normal... ...	5,000,000		6 to 7,000	66 % to 70 %	29 % to 30 %	4 % to 5 %	1 % to 2 %	—
2. Syphilitic Iritis ...	3,180,000	78 %	6,040	57·6 %	27 %	13·2 %	2·2 %	40·2 %
3. Non-Syphilitic Iritis	5,021,000	85 %	12,710	69·1 %	21·7 %	8·4 %	0·8 %	30·1 %

The results brought out by the foregoing figures may be summarised as follows :—

The leucocytes in the non-specific cases of iritis (12,710) were more than double those in the specific cases (6,040). The disproportion would be even greater, as the authors point out, if the blood-count had been made during the acute infection instead of after it had run its course. The eosinophiles were somewhat more abundant in the syphilitic cases (2.2 per cent.) than in the normal state (1 per cent. to 2 per cent.) and much more abundant than in the non-syphilitic cases (0.8 per cent.). It is in accordance with the anæmia known to occur in syphilis that the hæmoglobin was 78 per cent. of the normal and the red cells 3,180,000 instead of 5,000,000 to the cubic millimetre in the cases of syphilitic iritis. The mononuclears (13.2 per cent.) were increased in the syphilitic as compared with the non-syphilitic cases (8.4 per cent.) and with the normal (4 per cent. to 5 per cent.). The polynuclears, on the contrary, were diminished (57.6 per cent.) in specific cases as contrasted with the normal (66 per cent. to 70 per cent.). Briefly, then, the cases of syphilitic iritis showed a manifest anæmia, and although the leucocytes were almost normal in number, yet there existed a leucocytosis as regards the mononuclear elements. In iritis due to acute infections other than syphilis, the red cells were normal in number, but there existed a notable leucocytosis, without, however, any serious disturbance of the balance of the white blood cells. Any disturbance in that respect was in the sense of a polynuclear leucocytosis. SYDNEY STEPHENSON.

X.—THE EYE CHANGES IN GENERAL PARALYSIS.

Jocqs.—Ocular troubles in progressive general paralysis. (Les troubles oculaires dans la paralysie générale progressive.) *La Clinique ophtalmologique*, 10 avril, 1907.

In this interesting, but, perhaps, somewhat loosely-written article, **Jocqs** aims at a better understanding of pupil symptoms in general paralysis, tabes, and syphilis. The article does not lend itself to abstraction, but the points of distinction between the pupil signs in general paralysis and simple syphilitics (due to diffuse meningo-encephalitis) may be quoted: "Syphilitic ophthalmoplegia interna has a rapid onset, that of general paralysis is slow, and progressive in such a manner that the iris and ciliary muscle are not at first affected in the same degree. In syphilis the paralysis of the iris results in medium dilatation with but slight inequality. In general paralysis the dilatation increases with the paralysis in such a fashion that when the latter

is complete the mydriasis is considerable. In syphilis, when the pupillary inequality is established it remains permanent, unless the treatment causes amelioration. In general paralysis the irregularity is variable and follows the progressive course of the paralysis in such a way that the two pupils can be equally dilated when the ophthalmoplegia is equal in the two eyes."

The original article, and that of Gilbert-Ballet (with the same title) on which it is based (*Progrès Médical*, No. 23, 1893) should be consulted for details. ERNEST THOMSON.

XI.—TREATMENT.

(1) Macnab, Angus.—Marginal blepharitis: its cause, pathology, and treatment. *Royal Lond. Ophthalmic Hospital Reports*, Vol. XVI, Part III.

(2) Landolt, H.—On the treatment of affections of the lacrymal sac and the extirpation of the sac. (Zur Behandlung der Tränensackleiden und der Extirpation der Tränensacks.) *Die Ophth. Klinik*, Januar, 1907.

(3) Lemaire, P., and Villemonte.—Alypine and its employment in eye work. (L'Alypine, son emploi en oculistique.) *Archives d'ophtalmologie*, janvier, 1907.

(4) Fromaget.—Pneumococcus keratitis cured by antidiphtheritic serum. (Kératitis à pneumocoques guéries par le sérum antidiphthérique.) *Ann. d'oculistique*, T. CXXXVII, p. 59, janvier, 1907.

(5) Gérard. On the natural obstacles which can complicate the catheterisation of the lacrymal passages. (Des obstacles naturels capables de compliquer le cathétérisme des voies lacrymales.) *Ann. d'oculistique*, T. CXXXVII, p. 193, mars, 1907.

(6) Bérard.—Some words on compact grey oil in ocular massage. (Quelques mots sur l'huile grise compacte en massages oculaires.) *L'Ophtalmologie Provinciale*, T. III, p. 177, mars, 1907.

(7) Coleman, W. Franklin.—Some personal experiences in the use of electricity in ophthalmic practice. *Journal of the American Medical Association*, April 27th, 1907.

(8) **Best, F.—A contribution on subconjunctival injections.** (Beitrag zur Wirkung subconjunctivaler Injectionen.) *Arch. f. Augenheilk.*, Mai, 1907.

(9) **Desbrieres and Grenier.—On the treatment of corneal ulcers.** (Les ulcères de la cornée ; leur traitement.) *L'Ophtalmologie Provinciale*, T.IV., pp. 10 et 28, avril et mai, 1907.

(10) **Darier, A.—Serum therapeutics and metal ferments in ophthalmic practice.** (Die Serotherapie und die Metall-Fermente in der Augenheilkunde.) *Die Ophth. Klinik*, 5-20 Juni, 1907.

(11) **Stieren, Edward.—The treatment of ulcer of the cornea.** *Pennsylvania Medical Journal*, July, 1907.

(12) **Eperon.—An efficacious treatment of infective ulcers of the cornea.** (Un traitement efficace des ulcères infectieux de la cornée.) *Archives d'ophtalmologie*, juillet, 1907.

(13) **Zentmayer, William.—A case of epithelioma of the lid healed by the local application of chlorate of potash.** *Ophthalmic Record*, August, 1907.

(1) This paper has been written for the purpose of showing that cases of marginal blepharitis are caused by the same organisms as cases of angular conjunctivitis, *viz.*: the Morax-Axenfeld bacillus. **Macnab** claims that this is almost invariably found, and that all stages of transition are seen between well-marked cases of both diseases. He also claims that sulphate of zinc, which is so useful in cases of angular conjunctivitis, will give the best results in cases of marginal blepharitis. C. D. M.

(2) **H. Landolt's** paper deals chiefly with the operative treatment of chronic dacryocystitis. The author removes the lacrymal sac (1) when a dacryocystitis which has existed for some time, does not soon yield to treatment, consisting of canaliculotomy, probing, injections with some aseptic or antiseptic lotion, and massage; (2) when the sac is greatly dilated and cannot be expected to return to its normal size. The usual operation is described. PERCIVAL J. HAY.

(3) **Lemaire and Villemonte** have employed alypine in 2.5 per cent. solution, both as instillations and as an injection, for a variety of conditions, and find that it is a good local anæsthetic, likely to be useful when no action on the pupil or accommodation is desired. At the same time the new product does not appear to them to present sufficient advantages to

justify the abandonment of cocaine, which when used with common prudence is not really dangerous in ophthalmology. Altogether, the authors incline to think that too much has been made of the drawbacks of cocaine. S. S.

(4) **Fromaget** has treated two cases of corneal ulcer due to pneumococcus infection by subcutaneous injection of 10 cc. of antidiphtheritic serum. The injections were followed by rapid cure of the ulcers, which had previously been spreading in spite of their treatment with antiseptics, subconjunctival injections, cauterisation, paracentesis, etc. The idea of the treatment was suggested to the author by the remarkable results recorded from the use of injections of antidiphtheritic serum in the treatment of pulmonary infections due to pneumococci. It proved of no use in a case due to infection with staphylococci.

R. J. COULTER.

(5) **Gérard** describes a number of anatomical peculiarities which may interfere with catheterisation of the lacrymal passages, paying particular attention to prominences on the lacrymal bone and the ascending process of the superior maxilla (the anterior and posterior lacrymal spines) which occasionally cause considerable narrowing of the superior orifice of the nasal canal. The article, which is illustrated by a large number of figures, does not lend itself to abstract. R. J. COULTER.

(6) **Bérard** has found massage with the mercurial oil (*huile grise compacte*), recommended by Vacher, very useful in the treatment of blepharitis, conjunctivitis, and corneal ulcers, and as a substitute for subconjunctival injections in iritis and irido-choroiditis. The absorption of the mercury is favoured by the application of hot fomentations. The formula for the preparation is:—Mercure purifié 2.50, Pommade mercurielle 0.60, Lanoline 4.50, Huile de Vaseline 2.28; pour 10 grammes. R. J. C.

(8) **Best** has used a stain for glycogen for the purpose of studying the effect of subconjunctival injections. He found glycogen present in large quantities in the retina, while it was absent in the sclera, choroid, vitreous, anterior chamber, lens, and optic nerve. The peripheral portions of the retina contained more glycogen than the central parts, and the inner layers more than the outer ones. Best is of opinion that the glycogen is formed in the retina, and that it is not carried there by the bloodstream or by osmosis. PERCIVAL J. HAY.

(9) **Desbrieres** and **Grenier** recommend the following treatment for corneal ulcers: 1.—The lacrymal sac is syringed, and if there is dacryocystitis, the lacrymal passages are curetted. 2.—The eye is thoroughly irrigated with a 1 in 1,000 solution of potassium permanganate. 3.—The surface of the ulcer is lightly cauterised. 4.—A solution of permanganate of potash (1 in 30)

is dropped on the ulcer, and left in contact with it for half a minute, the surface to which it is applied being limited by holding the lids partially closed. 5.—The eye is again irrigated, and an iodoform dressing applied. If there is a hypopyon the centre of the floor of the ulcer is perforated with the cautery. The solution of permanganate diffuses rapidly among the layers of the corneal tissue, as shown by its staining them a brownish-red, and probably acts by giving up some of its oxygen to the cells. Its application causes practically no pain, and should be repeated daily, or every second day, according to the progress of the case. Desbrières has treated 284 cases by this method without a single bad result. R. J. COULTER.

(10) **Darier** advocates the use of anti-diphtheritic serum in a number of conditions in which he has seen good results. They include: membranous conjunctivitis, pneumococcal ulcers of the cornea, post-operative infections and keratitis, and hypopyon. Further, he recommends anti-diphtheritic serum followed by injections of collargol in gonorrhœal cyclitis, septic corneal ulcers, panophthalmitis, and wounds of a septic character. He uses anti-diphtheritic serum irrespective of the nature of the infection, because he finds the results are as good as with specific sera, the reason being, he thinks, that the toxin is such a violent poison, that it causes a serum to be produced which contains a great variety of protective substances and can render help in many kinds of infection. PERCIVAL J. HAY.

(12) **Eperon**, as the outcome of twenty years' experience of other measures, as the cautery and the Saemisch section, now treats infective ulcerations of the cornea by means of zinc sulphate, twenty per cent. The diseased surface is first cleansed, and then painted with the zinc, applied by means of a Bowman's lacrymal probe whose end is wrapped with a bit of absorbent cotton wool. The immediate result of the application is to turn the parts white. Pain is not specially severe. Hypopyon, if not too abundant, is quickly resorbed. In the contrary event, it is evacuated by a large paracentesis in the lower part of the cornea. One application of the zinc, in Eperon's hands, has usually sufficed to arrest the infective process. The author, however, does not neglect accessory measures, such as disinfection of the lacrymal passages, treatment of co-existing conjunctivitis, and the employment of hot antiseptic compresses. The zinc cauterisations may be applied to ulcerations other than hypopyon-keratitis, as, for example, Mooren's ulcer, neuro-paralytic keratitis, relapsing traumatic keratalgia, and infected wounds of the cornea, accidental or surgical.

SYDNEY STEPHENSON.

(13) A man, aged 55 years, came under **Zentmayer's** care

for an ulceration of the lower lid, diagnosed as epithelioma. Powdered chlorate of potassium was applied to the surface of the ulcer—at first, daily, and, later, every second day. The medicament was thoroughly rubbed into the floor and edges of the ulcer. Healing set in after a week's treatment, and the ulcer is now completely cicatrised. Treatment had extended over a period of ten weeks. SYDNEY STEPHENSON.

REVIEWS.

Tuberculosis in the Etiology of chronic Inflammations of the Eye and its adnexæ, especially of chronic Uveitis. (Tuberculose als Ætiologie der chronischen Entzündungen des Auges und seiner Adnexæ, besonders der chronischen Uveitis.) Von DR. W. STOCK. Leipzig: W. Engelmann. 1907.

In this monograph, Dr. Stock does not deal with the conditions usually diagnosed as tuberculous. Widely divergent opinions have been expressed by different authors as to the *rôle* played by tubercle in such diseases as chronic iridocyclitis, especially of the recurrent type, scleritis and sclerotising keratitis, interstitial keratitis, and disseminated choroiditis. It is not to be denied, of course, that syphilis, hereditary or acquired, is responsible for many instances of these diseases. Yet cases undoubtedly occur in which syphilis is not only unproven, but even seems to be out of the question. The same is true of gonorrhœa, gout, rheumatism, sepsis, etc., so that in a not inconsiderable number of cases we are wholly at a loss as to the etiology. Are certain of these tuberculous? So far the answer has been largely a matter of conjecture, influenced by individual bias and probably by the local frequency of other forms of tubercle.

Stock sets himself the task of attempting to gain some positive evidence one way or the other. He approaches the subject from two points of view:—1. By observing what lesions can be produced by introducing the tubercle bacillus into the blood of rabbits. 2. By studying the diseases as they occur in man by means of (a) animal inoculations of excised pieces of the diseased tissues, (b) pathological examination of enucleated eyes, (c) the general and local reaction to Koch's older tuberculin (tuberculin T. V.).

1. By the introduction of tubercle bacilli into the blood of rabbits the usual tuberculous lesions of the uvea were easily

reproduced. In addition, Stock succeeded in obtaining a sclerotising keratitis, which was found to be due to invasion of the cornea from the periphery by tuberculous tissue. He also obtained diffuse interstitial keratitis without tuberculous nodules, but only in association with tuberculous iritis; this he regards as due to tuberculous toxines, not to the bacillus itself. Lesions resembling disseminated choroiditis and scleritis were also found. The scleritis was always secondary to a choroiditis, and he believes that this is also the pathology of human scleritis. In one case he obtained chalazion-like nodules in the tarsus. Microscopical examination showed that in many instances the lesions did not exhibit typical tuberculous structure, even when the tubercle bacillus could be demonstrated in them. Hence, it is argued, atypical lesions in human eyes *may* be tuberculous.

2. (*a*) With regard to animal inoculations of excised pieces of tissue from human eyes (portions of iris removed by iridectomy), these were uniformly without result. This was probably because, for obvious reasons, the pieces could only be obtained from old-standing cases in which the disease was inactive. Injections of aqueous were also negative.

(*b*) The results of pathological examination were also very doubtful. In one instance out of eight there were tubercles in the retina, with an infiltration of the iris which did not show specifically tuberculous characters. This case reacted to tuberculin. In three other instances Stock speaks of the lesions as "probably" tuberculous, although on reading the detailed descriptions, it is difficult to understand why he should so describe them. He was not successful in finding the tubercle bacillus in any instance.

(*c*) Better evidence was furnished by the tuberculin tests. Of 14 cases of interstitial keratitis, 8 (57·1 per cent.) gave a general reaction. Three of these presented other personal or family evidence of tubercle. Of 23 with phlyctenular ulcers, etc., 20 (87 per cent.) reacted generally; one patient locally. Of 59 with chronic iritis and iridocyclitis, 36 (61 per cent.) reacted generally. Of 17 with disseminated choroiditis, 9 (52·3 per cent.) reacted generally; of those who reacted generally 15·5 per cent. showed local reaction also. In 6 cases of scleritis general reaction was obtained three times and local once. These figures lose something in significance, but still remain remarkable, from the record of 54 patients with no suspicion of tuberculous disease in the eye or elsewhere, among whom 13 (24 per cent.) reacted. It may be that all these harboured some hidden focus of infection, but the suspicion must also be aroused that reaction to tuberculin is not absolutely diagnostic of the presence of tuberculous lesions.

Stock lays great stress on finding with the binocular microscope very minute grey dots on the iris, especially about the circulus minor, which are invisible under the ordinary magnification of the *loupe*. He discovered them especially in cases which reacted to tuberculin, and believes them to be very characteristic of tubercle.

On the whole, then, Stock ascribes a considerable *rôle* to tubercle in the diseases mentioned. The logical conclusion is, that when other causes can be excluded, or when their appropriate treatment fails, and, still more, when a reaction to tuberculin is obtained, treatment should be anti-tuberculous. He reports encouraging results from the use of Koch's new tuberculin (Tuberculin T.R.) in cases belonging to this class. The advisabilty of checking the treatment by reference to the opsonic index is not mentioned. The paper is a record of careful and painstaking research, tending to throw light on a puzzling set of cases, which ophthalmologists are perhaps somewhat too apt to label with a name without entering minutely into the question of under-lying causes. GEORGE COATS.

Tics and their Treatment. By HENRY MEIGE and E. FEINDEL, with a Preface by Professor BRISSAUD. Translated and Edited, with a critical appendix, by S. A. K. WILSON. Pp. 386. London: Sydney Appleton, 1907. Price 9s.

This translation is one to be universally welcomed, not only on account of its intrinsic merits, but also because of the urgent need in this country of some diffusion of knowledge on the subject in question. The book stands without a rival in English, in spite of the great practical importance of the subject, and even on the Continent it occupies a very worthy niche in the edifice of knowledge, which in the past few years has been erected in this connection.

The whole subject has been approached from the directly neurological standpoint. The result is that the clinical descriptions, the problems of diagnosis, and the questions of nosology have been dealt with in a most admirable manner. With a purely mental affection, however, it is of even greater importance that the psychological standpoint should be soundly based, for it is only in this way that the essential pathogenesis and rational therapeutics of the affection can be permanently established. This is by far the weakest part of the book, so that much of the sections on ætiology, pathogenesis, and treatment will not bear critical analysis. This place is, of course, not suitable for a discussion of these matters, so that the above

remarks must appear dogmatic. Still, there is no doubt of the unquestionable value of the neurological descriptions contained in the book, and this alone renders it absolutely necessary to anyone interested in the scientific knowledge of the various disorders treated therein.

Dr. Wilson should be warmly congratulated on his admirable translation, which is a model of how such things should be done. He has seriously re-edited the original book by the inclusion of more recent work, and in an appendix reviews certain points in which other writers differ from the authors. He had the advantage of reading the proofs of Cruchet's monograph on the subject, which to some extent has replaced the present volume in France, and of incorporating some of the views contained therein. He has also appended a very considerable bibliography. ERNEST JONES.

Diseases of the Eye. A Manual for Students and Practitioners. By J. HERBERT PARSONS, London: J. & A. Churchill, 7, Great Marlborough Street. 1907. 664 pp. Price 10s. 6d. net.

The indefatigable Mr. J. Herbert Parsons has given us yet another book, *Diseases of the Eye*, recently published by Messrs. J. & A. Churchill, of London. Mr. Parsons recognises that the writer of such a book must justify its appearance, and this he attempts to do on several grounds which will be found in the preface to the volume. It is perhaps well that the book itself is more convincing than the excuses Mr. Parsons offers for its publication. The latter seem to us to be lame indeed!

It was with some little trepidation we observed that the author threatened in the preface to treat errors of refraction "exhaustively from the optical point of view," but on turning to the text we were relieved to find that his bark was worse than his bite. The descriptions offer no difficulty to any student of moderate education and average intelligence. It is curious, by the way, to contrast Parsons' attitude on this point with that of another accomplished writer, Dr. Victor Morax, of Paris, who in his recent *Précis d'Ophtalmologie* (1907) says, in so many words, that physiological optics and geometrical demonstrations do not render the least help to the student in the prescribing of glasses for his patients. Here we have two irreconcilable views. Who shall decide which is the right one?

If the book before us differs from others, it is only in the fact that it enters somewhat more fully than is usual into the anatomy and physiology of the eye, elementary and physiological optics, and the neurology of sight. Examination of the eye

occupies 79 pages, and includes a number of diagrams and illustrations with many of which we are not familiar. The remainder of the treatise follows the plan in common use—that is to say, diseases are described in anatomical order, as far as may be, while special sections are devoted to such subjects as glaucoma, intra-ocular tumours, injuries to and operations on the eye, errors of refraction, and disorders of motility. The three appendices respectively contain notes upon the preliminary examination of the patient, remedies, and the requirements of candidates for admission to the public services.

It may be said that the descriptions of disease, in general, are brief, to the point, and faithfully reflect current views, although with a distinct leaning to the German school of ophthalmology. A personal note, however, is struck here and there, as, for example, when describing sympathetic "ophthalmia" (*sic*), Mr. Parsons tells us that it is doubtful if wounds in the ciliary region, called years ago by Nettleship the "dangerous zone," are more dangerous *per se* than others, and that the most probable explanation of sympathetic disease is that it depends "on a specific organism, which has as yet escaped observation, possibly because it is so small as to be ultra-visible by the microscope, but one which causes general infection through the blood stream." "It may be conjectured," he continues, "that the organism is harmless to other organs of the body, and that it only finds a suitable nidus in the other eye, and even then only under favourable circumstances." Again, speaking of the treatment of chronic dacryocystitis, Parsons condemns the use of probes and of styles, and advises systematic washing out of the passages with boric lotion or protargol, and if that fails, excision of the lacrymal sac. We observe that Parsons lays stress in the diagnosis of acute retro-bulbar neuritis on the failure of the pupil of the affected eye to maintain its contraction under bright illumination. "This phenomenon," he says, "if it can be placed beyond dispute, is of the utmost diagnostic significance."

Again, the advice to treat the recurrent marginal ulcers of gouty subjects by painting the ulceration with solution of silver nitrate (grs. v to the ounce), conveys a useful therapeutic hint not so widely known as it deserves to be. Parsons does not approve of cauterisation of the cornea with the galvano-cautery, which, in his opinion, "requires more skill, possesses no advantages, and has some disadvantages," as compared with the application of pure carbolic acid (p. 245). At the same time he is constrained to admit (p. 250) that the acid does not destroy vessels efficiently, so that whenever this is aimed at, the cautery must be used, while in Mooren's ulcer, "no treatment

is of any avail except the actual cautery, and that not invariably" (p. 257). Physostigmine, according to the author, is never to be used for a simple ulcer, although it may have beneficial effects in special chronic types, such as marginal ulcerations. The signal service that physostigmine is sometimes capable of rendering in sloughing conditions of the cornea, especially in keratomalacia, might have been mentioned with advantage. Parsons, in speaking of the clearing of corneal opacities, has a good word to say for dionine in 10 per cent. to 15 per cent. solution, since "the stimulation of the blood and lymph flow induced by this drug is undoubtedly beneficial" (p. 233). The same effect, as he points out, may be produced by the subconjunctival injection of 2 per cent. to 10 per cent. solution of sodium chloride, although the directions given for making the injection (p. 233) are not quite as clear as they might be. The caution is rightly given that cocaine "should never be given in lotions for use at home" (p. 221).

Of inaccuracies, in the proper sense of the word, the book contains remarkably few. Few surgeons of experience, however, will agree with Parsons' axiom, namely, "that sympathetic ophthalmia never occurs after the excision of an injured eye unless it has already commenced at the time of operation" (p. 452). We must again join issue with the statements that isolated opaque nerve-fibres never occur far from the disc (p. 392), and that the ordinary form often occur in both eyes (p. 393). Once more, on p. 189 of phlyctenulæ it is stated that "they never occur on the palpebral conjunctiva." Everybody who has systematically looked for them in that position must occasionally have found them. Again, it is impossible to agree with Parsons' statement (p. 215) that the mild form of xerosis, accompanied by night blindness and contraction of the field of vision and by white patches on the conjunctiva, is an affection of adults, although in making that claim we are aware that Parsons has merely followed the example of Fuchs (*Text-Book of Ophthalmology*, 1899, p. 120, second American edition). On the contrary, it has been shown that the malady in question is far from uncommon among poor children in this country. The assertions that in interstitial keratitis "the surface never becomes ulcerated" (p. 262) and that "interstitial keratitis in acquired syphilis is extremely rare" (p. 263) appear to require modification.

The outstanding merits of *Diseases of the Eye* are accuracy and modernity. On these grounds alone it deserves to be widely read. It is written plainly and clearly. It is rare indeed that one encounters sentences such as those quoted below:— "It is a truism, but it is often disregarded, that an unusual

type of case is less likely to be a rare disease than an unusual manifestation of a common one" (p. 200). "Molluscum contagiosum is a small white umbilicated tumour, generally multiple. A substance resembling sebum can be squeezed out of them. They should be squeezed out after incision, and the interior touched with solid silver nitrate stick" (p. 604). "In the intervals between syringing, the patient should be told frequently to squeeze out the contents of the sac" (p. 617). "Prominent among such causes are conjunctival conditions and the general state of nutrition" (p. 232). "If a small perforation is over the iris, adhesion to the cornea usually occurs" (p. 238). Equally rare is a counsel of superfluity such as occurs on page 613, where we learn that "under no circumstances should the canaliculus be slit up unless it is absolutely necessary. It should never be slit up more than is absolutely necessary." There is somewhat of a tendency to employ such forcible-feeble words as "absolutely," "utmost," "enormously," "asseverated," "slightest," "intense," "unbearably," and so forth, which so far from strengthening usually detract from the force of the author's statements. It is to be wished, too, that Mr. Parsons would decide for himself which (if either) is the right word to employ, since he uses indifferently the two words "cocained" and "cocainised." The coining of such expressions as these mentioned, however convenient, should, we think, be eschewed by all who aspire to write their mother tongue with even tolerable approach to elegance. Again, throughout the book we read of boracic acid, notwithstanding the fact that the British Pharmacopœia has for long used the expression boric acid. "Exudate" (for exudation) and "infiltrates" (for infiltrations) are ugly words for which Mr. Parsons manifests a lamentable partiality. "Tubercular" for "tuberculous" often occurs.

Mr. Parsons is hopelessly addicted to the statement absolute. This is doubtless, to some extent, unavoidable in a book intended, as the present one is, for students and practitioners. At the same time these dogmatic statements jar not a little upon the ear of the ophthalmic surgeon. It is more than within the bounds of mere possibility that many of Mr. Parsons' readers will belong to the latter class, whose feelings it would be wise to consider in the matter.

In conclusion, we feel no hesitation in expressing the opinion, arrived at from a careful perusal of the book, that *Diseases of the Eye* will rank high among text-books of ophthalmology. We wish it a well-deserved success. The text is singularly free from blunders, printers' and otherwise. It has evidently been read with care. Lüer, however, should have a diæresis placed over

the "u," and Dr. Argyll Robertson spells his name without a hyphen, as printed on page 110 and elsewhere in Mr. Parsons' book.

A word of praise must be accorded, finally, to illustrations, print, and paper, all of which are excellent.

On the Influence of the Sympathetic Nerve on the Accommodation. Over den inolved van den N. Sympathens op de accommodatie. By Dr. E. C. TUINZING. Dissertation, Utrecht, 1905.

There does not exist unanimity of opinion as to the question whether the sympathetic nerve has or has not any influence on accommodation. Some investigators firmly believe there is no connection at all between this nerve and accommodation; others think they have observed an action on accommodation on irritating the sympathetic. Among the latter some observed an accommodation for *near*, others an accommodation for the *distance*, a so-called negative accommodation.

Tuinzing in his researches, determined the refraction of dogs, cats, and rabbits, before and during galvanic and Faradic stimulation of the cervical sympathetic nerve. To avoid the difficulties arising from the enlargement of the pupil, Tuinzing performed an iridectomy on opposite sides of the iris in very young animals, only using them for the experiment when grown up. At this time irregular astigmatism resulting from the operation, and the blood-clot in the pupil had disappeared, and the refraction could be exactly measured by skiascopy in the meridian of the two iridectomies. The small lateral flaps of iris still existing were sufficient to ascertain whether the isolated sympathetic nerve was duly irritable during the experiments. Tuinzing's results were as under :—Stimulation of the sympathetic nerve in rabbits, cats, and dogs has no effect whatever on accommodation, either positive nor negative. Nor has the sympathetic nerve an inhibitive action on the accommodation resulting from irritation of the ciliary nerves. The accommodation of the cat, on electric irritation, or after eserine, never exceeds two dioptres. There is a marked difference in this respect between the author's result and the findings of Grossmann, who observed a far greater range of accommodation.

G. F. ROCHAT.

NOTES AND ECHOES.

Deaths.

MR. A. S. GRAY, who practised ophthalmic surgery in Melbourne for many years, and who founded the Victorian Eye and Ear Hospital in that city, died on July 10th last at the ripe age of 81 years. The demise is also announced of Dr. William Thomson, once professor of ophthalmology in the Jefferson Medical College, Philadelphia, Pa.

* * * *

Appointments.

DR. JOSEF MELLER has been recognised as *Privatdozent* in Vienna, Dr. Stefano Santucci in Turin, Dr. Ernesto Sgrosso in Naples, Dr. Artur Brückner (formerly assistant to Professor Hess in Würzburg) in Königsberg, and Dr. A. Gatti in Naples. Dr. P. Barabasheff, extraordinary professor, has been appointed professor of ophthalmology in the University of Kharkoff. Dr. G. Cirincione, extraordinary professor, has been appointed ordinary professor in Palermo. Dr. Leopold Heine, of Greifswald, has accepted the professorship of ophthalmology at the University of Kiel. To zur Nedden, well-known in this country for his bacteriological researches, has been accorded the title of professor of ophthalmology in the University of Bonn.

* * * *

Optical Philanthropy.

MR. JAMES COATS, the widely-known cotton manufacturer of Paisley, has sent an oculist through the Highlands of Scotland, for the purpose of providing those with defective sight with spectacles gratuitously. It is stated that in West Sutherlandshire recently five hundred pairs of spectacles were distributed.

* * * *

British Ophthalmic Hospital, Jerusalem.

ACCORDING to our contemporary the *British Medical Journal*, the British Ophthalmic Hospital at Jerusalem continues its beneficent work. The Patriarch of the Orthodox Greek Church has sent a donation of £16 to maintain a bed for one year, and the Turkish Government has exempted all the property belonging to the Grand Priory of the Order of the Hospital of St. John of Jerusalem from taxation. The number of in-patients in 1906 was 942 and of new out-patients 8,528. Operations numbered 1,542, and of these anæsthetics were administered in 780.

New York State "Optometry" Bill.

THE following is clipped from the *New York State Journal of Medicine* of August, 1907:—

THE OPTOMETRY BILL VETOED BY THE GOVERNOR.

Memorandum filed with Senate Bill No. 2356 (Senate Reprint No. 1492) entitled "An act to amend the public health law by defining optometry and regulating the practice thereof."—Not approved.

It is the intent of this bill that the board of examiners in optometry, to be appointed by the Board of Regents, shall be selected from those nominated by the Optical Society. It is also provided that the prescribed course of professional study in schools of optometry shall be had in such schools as maintain a standard satisfactory to the board of examiners. These provisions remove from the jurisdiction of the Board of Regents matters which it is important should be placed in their control. If the practice of optometry is to have the recognition and regulation contemplated by this bill, the appointment of examiners should not be limited to those nominated by a particular society, and the determination of the standards of professional schools should be unequivocally left to the proper State authority. This is the policy established by the law enacted this year regulating the practice of medicine, and in my judgment it is unwise in legislation along similar lines to adopt a different principle.

(Signed) CHARLES E. HUGHES.

* * * *

Ophthalmia Neonatorum.

THE recent action of Mr. Simeon Snell at Sheffield in the matter of ophthalmia neonatorum might with advantage be followed in other cities. Recognizing that the preventive management of the disorder lies largely in the hands of those who attend the actual birth, Mr. Snell issued an invitation to qualified midwives to take tea at the Royal Infirmary on September 26th last. He then put forcibly before his audience, which included the Lady Mayoress, the dangers of infantile ophthalmia, and explained how the disease might be prevented. At Bradford, Yorks, we note that the cautionary instructions regarding new-born infants, for many years gratuitously distributed by the Registrar of Births and Deaths, are now sent to every midwife by the Committee of the Bradford Royal Eye and Ear Hospital, since the Registrar is no longer willing to distribute the printed slips. Despite the rules of the Central Midwives Board, which enjoin that a midwife shall call in

medical assistance whenever a baby's eyes become inflamed, Dr. Adolph Bronner saw last year at the local eye hospital no fewer than five cases of purulent ophthalmia in which the midwife had treated the eyes for several days, and had not sent for a medical man. He calls for the infliction of an exemplary punishment in cases such as these.

* * * *

Dispute over a Specialist's Fees.

A CASE recently decided in the Westminster County Court is of some little interest to ophthalmic surgeons. The executors of the late Mr. C. J. Oldham, of Hove, sued a lady of position for £90, balance due for attendance and operations on the eye. The defendant lived at Worthing, some ten miles from Hove, and Mr. Oldham had paid nineteen visits, and had, besides, operated on each eye. Evidence having been given that Mr. Oldham's charges were fair and reasonable, and that fees were based, not so much on the nature of the operation as upon the experience of the surgeon, the jury found for the plaintiffs, and judgment was given accordingly, with costs.

* * * *

Specialist Appointments in India.

WE note that of 105 specialist appointments in India open to Officers of the Royal Army Medical Corps and of the Indian Medical Service, ten are apportioned to ophthalmology. The remuneration attached to each appointment is at the rate of Rs. 60 a month.

* * * *

"The Ophthalmoscope."

DR. ERNEST THOMSON, whose name is familiar to ophthalmic surgeons in connection with injuries to the eye of the child at birth, has joined the staff of THE OPHTHALMOSCOPE as Editorial Secretary. Dr. Thomson, among other appointments, holds that of Surgeon to the Glasgow Eye Infirmary.

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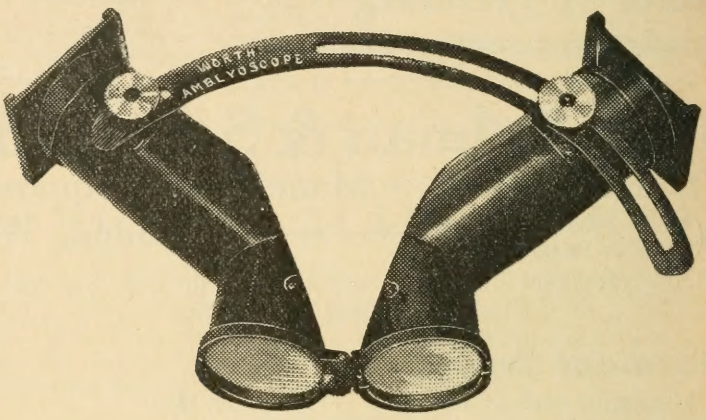

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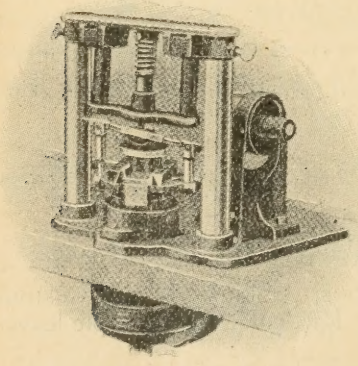

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